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May 2003
Volume 74
No. 5
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Safes & Vaults







...also this month
Interchangeable Core Service Tools
page 46

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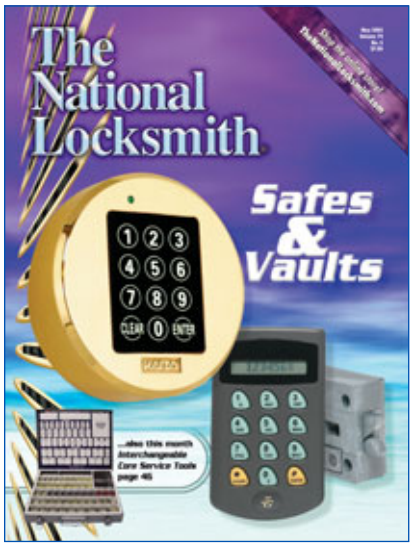
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On The Cover...



From the simple to the sophisticated safe lock designs, Kaba Mas and Sargent & Greenleaf have it covered. When it comes to pinning products, LAB has it covered.

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COMMENTARY



...On twenty years, Superman and Locksmithing

Although it's really hard for me to believe , I came to *The National Locksmith* 20 years ago. Wow, I've given you guys the best years of my life! As a 24 year old man my life's goal was to be involved in publishing the written word. I have been lucky enough to publish for you. So thank you for giving me 20 really interesting years, and for only yelling at me occasionally!

In those two decades, I have seen a great number of aspects in locksmithing change. For general locksmiths, perhaps the greatest number of changes that affect you daily have come in the automotive area.

Why back in my day, youngins', auto key blanks cost you the amount of money you now find in the Take-A-Penny Give-A-Penny tray at Seven Eleven. What you earned by duplicating those keys was the kind of spare change you can now find under your sofa cushion. (Next to the stale cheetos.)

Then something happened along the way and VATS was invented. This really threw locksmiths into a tizzy, because all of a sudden, blanks were going to cost a few bucks each instead of a few copper pennies. (By the way, am I the only person with a bucket full of about 2,000 pennies?)

Not only were those VATS blanks more expensive, but you also needed a VATS Decoder costing a hundred or more dollars. However, after the panic subsided, and we realized Godzilla wasn't waddling down the street, we found that VATS keys turned fairly unprofitable duplication into much more cash than we were expecting.

When I was a kid, a dime was an interesting sum of money. With that single coin, I could purchase either a comic book or a candy bar. I'm talking about a comic book that's probably worth fifty bucks today, or a full size candy bar, not like those little grab bag size ones they sell now. (Has anyone else noticed that they still make those full size bars today, but they just call them King Size and they charge more?)

Today a dime is not interesting, and I keep them in the car to use for tolls. In the same way, VATS keys which used to be interesting now seem like penny ante. That's because transponder keys have come along, and they make some locksmiths long for the day that they could get away with a four dollar VATS blank on the hook.

But for the locksmith who wants to earn more money than ever before possible on car key duplication, you now have some serious money to invest. Transponder keys offer a wealth of opportunities to locksmiths who invest in programming equipment, education and blanks.

It's not too late to explore these opportunities, welcome them, talk to the companies who specialize in transponder equipment, and prepare to make more money on cars than you thought possible. Don't throw away this opportunity.

Now if only someone had told me not to throw away my comic books!



Marc Goldberg

Marc Goldberg
Publisher

Have questions? Want free technical help? Free Locksmith Forums!
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Mango's Message

Master Key Vulnerabilities Revealed, Part 3

Keep It Secret, Stupid!

So far I have presented you the original New York Times *newspaper article that broke this story and Matt Blaze's research paper on discovering the master key. This month you will learn why Mr. Blaze focused on master keyed locks.*

When I first got wind of this story I contacted Matt Blaze to ask why an AT&T research lab cryptologist would be applying his practices and theories to master keyed locks? My first inclination was that he might have been asked (or tipped off about the potential vulnerability) by one of the high-security mechanical lock, or electronic access control manufacturers. After all, if I owned such an entity, I would be more than eager to circumvent the competitors system and have the findings published (through an unassociated second-hand party) to bolster and extol the virtues of my product. Given the heightened awareness of security since 9/11 and the potential vulnerabilities that currently exist, any weakness in the armor and the potential aftermath is greatly exaggerated due to the level of hysteria and concern. All this would work to my shrewd marketing advantage.

When Mr. Blaze and I spoke, his first statement was: "Because I work for a big and extremely bureaucratic company, If you want to quote me directly I have to call and get my media guy on the phone from the company, which is more of an ordeal. So if you want to just chat, then we can figure out if that is necessary."

Since I already knew pretty much all the answers to the questions I was going to ask Mr. Blaze, which were found by researching his web site, it was unnecessary to include a PR media mogul to tap in and scrutinize every question and answer of the conversation. The only question I had which I did not know the answer to (which I did ask without clearance from the PR guy), was if he was asked, or tipped off by an outside source (namely a high-security mechanical lock, or electronic access control manufacturer) to publish a paper on the vulnerabilities of master keyed locks? His answer was "No."

The reason why he did the research on master keyed locks and his response to whether such information should be publicly disseminated, or kept secret, follows:

Master-Keyed Lock Vulnerability

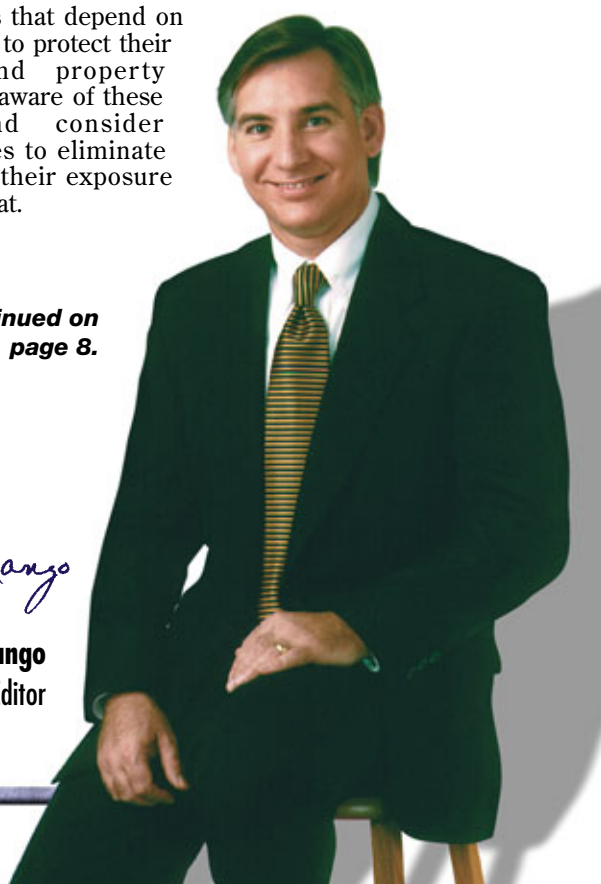
by Matt Blaze

The Threat

In a recent research paper, I describe weaknesses in most master-keyed lock systems, such as those used by offices, schools, and businesses as well as by some residential facilities (particularly apartment complexes, dormitories, and condominiums). These weaknesses allow anyone with access to the key to a single lock to create easily the "master" key that opens every lock in the entire system. Creating such a key requires no special skill, leaves behind no evidence, and does not require engaging in recognizably suspicious behavior. The only materials required are a metal file and a small number of blank keys, which are often easy to obtain.

Needless to say, the ability for any keyholder to obtain system-wide access represents a serious potential threat to the security of master-keyed installations. Individuals and institutions that depend on such locks to protect their safety and property should be aware of these risks and consider alternatives to eliminate or reduce their exposure to this threat.

Continued on page 8.



Greg Mango

Greg Mango
Editor

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Who is Vulnerable?

A master-keyed lock system is one in which locks are designed not only to be opened by their individual keys, but also by special "master" keys that open some or all other locks in the system. They are commonly found in commercial, industrial, educational and government facilities as well as in some centrally-managed residences. Master keying is used because it allows those who must have access to many locks (maintenance workers, managers, etc.) to carry only a few keys. (Note that master keying is unrelated to whether the locks are sold under the "Master®" brand name.) It is not usually possible to tell by inspecting a key or a lock from the outside whether it is part of a master system. Individuals should ask their locksmith, building management, or maintenance office whether their locks are master-keyed.

This research demonstrates that virtually all master-keyed mechanical lock systems are at least theoretically vulnerable; the practical seriousness of the threat to any particular system depends on a number of factors:

• Only master-keyed locks are vulnerable to this threat. These techniques are not effective against locks that are not part of a master system.

• In order to make a master key, the attacker must have access to one of the locks in the system and possess or have previously examined its associated key. Any lock and key in the system is sufficient for this purpose, and so any individual who has ever been given access to any key has the potential to carry out the attack. The technique involves a series of simple "probes" of a lock (typically less than fifty) which reveal successively more information about the master key. This can be done in several sessions; continuous access to the lock for an extended period of time is not required.

• The procedure consumes a small number (less than ten) of "blank" keys of the kind that fit the locks. Blank keys for most commonly-used locks are available in small quantities from a wide range of commercial sources. The keys are "cut" using hand-held machines or a small metal file.

Alternatives and Countermeasures

Unfortunately, at this time there is no simple or completely effective countermeasure that prevents exploitation of this vulnerability short of replacing a master-keyed system with a non-mastered one. Residential facilities and safety-critical or high-value environments are strongly urged to consider whether the risks of master keying outweigh the convenience benefits in light of this vulnerability. Lock users should evaluate these risks before purchasing or installing new master-keyed systems.

Depending On Individual Circumstances, A Range Of Defenses May Be Appropriate:

• Eliminate the use of master keying entirely. This is the safest option in most cases. Simple mechanisms such as locked key control cabinets can provide a workable alternative to master keying, especially in smaller-scale environments.

• Use a lock design that is not vulnerable. There are lock designs (including those that use "master rings," those that employ multiple cylinders, and those based on electronic controls) that permit master keying without this vulnerability, but they are not widely used commercially and may not be available for some lock applications.

• Use a lock system for which it is difficult to procure keys. Some locks, particularly those marketed for larger-scale commercial installations, use "restricted" keys, which may make it more difficult for a potential attacker to obtain the correct blanks. However, in practice this may offer only the appearance of protection; many "restricted" blanks are in fact readily available from aftermarket and offshore sources, and even when they are not it is often not difficult to fabricate a working blank directly.

• If master keying must be used, limit the scope of a successful attack by separating different functions into different master systems. For example, instead of having a single master system for an entire organization, use separate master systems for different work groups, floors, etc.

Why Is This Information Being Made Available?

Since this research was completed last Fall, we have been quietly circulating details of the vulnerability to the lock, law enforcement, and security communities. However, there is some evidence that the details are now circulating in the underground world. At this point we believe that it is no longer possible to keep the vulnerability secret and that more good than harm would now be done by warning the wider community. Several correspondents have noted that this attack, and similar techniques, have been passed down as folklore in both the locksmithing and underground communities.

Technical Details And Resources

The vulnerability was discovered by applying the techniques of cryptanalysis, ordinarily used to break secret codes, to the analysis of mechanical lock design. The research paper describing this analysis and the discovered vulnerability can be found (in PDF format) on the world wide web at http://www.crypto.com/papers/mk.pdf.

The author strongly suggests that facility managers and concerned individuals consult with a competent security professional or locksmith to discuss the vulnerability of their particular installations.

Neither the author nor AT&T endorses or recommends specific lock products or security services. However, the following resources and organizations may be helpful for locating an appropriate security specialist or as a source of technical information:

• Investigative Law Offices, http://www.security.org, has extensive information on the evaluation of physical security systems generally and has a video demonstration of the attack available to qualified security professionals.

• The Associated Locksmiths of America, http://www.aloa.org, is the main trade association for locksmiths and can help locate a locksmith in your area.

• The American Society for Industrial Security, http://www.asisonline.org, is the professional society for industrial security specialists.

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This fact sheet will be available on the world wide web at http://www.crypto.com/masterkey.html.

Keep It Secret, Stupid!

Last year, I started wondering whether cryptologic approaches might be useful for the analysis of things that don't use computers. Mechanical locks seemed like a natural place to start, since they provided many of the metaphors we used to think about computer security in the first place.

So I read everything I could get my hands on about locks, which included most of the available open literature and at least some of the "closed" literature of that field. Once I understood the basics, I quickly discovered, or more accurately re-discovered, a simple and practical rights amplification (or privilege escalation) attack to which most master keyed locks are vulnerable. The attack uses access to a single lock and key to get the master key to the entire system, and is very easy to perform. For details, see http://www.crypto.com/masterkey.html.

I wrote up the attack, in a paper aimed more at convincing computer scientists that locks are worth our attention than anything else (I called it "Rights amplification in master-keyed mechanical locks"). As I pointed out in the paper, surely I could not have been the first to discover this — locksmiths, criminals, and college students must have figured this out long ago. Indeed, several colleagues mentioned that my paper reminded them of their college days. There is considerable evidence that similar methods for master key decoding have been discovered and rediscovered over the years, used illicitly and passed along as folklore (several people have unearthed Internet postings dating back as much as 15 years describing how to make master keys). Curious college students — and professional burglars — have long been able to get their hands on master keys to the places that interest them.

But the method does not seem to appear in the literature of locks and security, and certainly users of master keyed locks did not seem to know about this risk. I submitted the paper to a journal and circulated it to colleagues in the security community. Eventually, the paper reached the attention of a reporter at the New York Times, who wrote it up in a story on the front page of the business section last week.

The response surprised me. For a few days, my e-mail inbox was full of angry letters from locksmiths, the majority of which made both the point that I'm a moron, because everyone knew about this already, as well as the point that I'm irresponsible, because this method is much too dangerous to publish. A few managed to also work in a third point, which is that the method couldn't possibly work because obviously I'm just some egghead who doesn't know anything about locks.

Those letters, with their self-canceling inconsistency, are easy enough to brush aside, but there seems to be a more serious problem here, one that has led to a significant real-world vulnerability for lock users but that is sadly all too familiar to contemporary observers of computer security.

The existence of this method, and the reaction of the locksmithing profession to it, strikes me as a classic instance of the complete failure of the "keep vulnerabilities secret" security model. I'm told that the industry has known about this vulnerability and chosen to do nothing — not even warn its customers — for over a century. Instead it was kept secret and passed along as folklore, sometimes used as a shortcut for recovering lost master keys for paying customers. If at some point in the last hundred years this method had been documented properly, surely the threat could have been addressed and lock customers allowed to make informed decisions about their own security.

The tragic part is that there are alternatives. There are several lock designs that turn out to resist this threat, including master rings and bicentric locks. While these designs aren't perfect, they resist completely the adaptive oracle attack described in my paper. It's a pity that stronger alternative designs have been allowed to die a quiet death in the marketplace while customers, ignorant of the risks, have spent over a hundred years investing in inferior systems.

Although a few people have confused my reporting of the vulnerability with causing the vulnerability itself, I can take comfort in a story that Richard Feynman famously told about his days on the Manhattan project. Some simple vulnerabilities (and user interface problems) made it easy to open most of the safes in use at Los Alamos. He eventually demonstrated the problem to the Army officials in charge. Horrified, they promised to do something about it. The response? A memo ordering the staff to keep Feynman away from their safes.

Is It Harmful To Discuss Security Vulnerabilities?

The debate over the open discussion of security vulnerabilities long predates the Internet and computers. Here's what one of the 19th century's foremost inventors of mechanical locks had to say 150 years ago:

A commercial, and in some respects a social doubt has been started within the last year or two, whether or not it is right to discuss so openly the security or insecurity of locks. Many well-meaning persons suppose that the discussion respecting the means for baffling the supposed safety of locks offers a premium for dishonesty, by showing others how to be dishonest. This is a fallacy. Rogues are very keen in their profession, and know already much more than we can teach them respecting their several kinds of roguery.

Rogues knew a good deal about lock-picking long before locksmiths discussed it among themselves, as they have lately done. If a lock, let it have been made in whatever country, or by whatever maker, is not so inviolable as it has hitherto been deemed to be, surely it is to the interest of honest persons to know this fact, because the dishonest are tolerably certain to apply the knowledge practically; and the spread of the knowledge is necessary to give fair play to those who might suffer by ignorance.

It cannot be too earnestly urged that an acquaintance with real facts will, in the end, be better for all parties. Some time ago, when the reading public was alarmed at being told how London milk is adulterated, timid persons

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deprecated the exposure, on the plea that it would give instructions in the art of adulterating milk; a vain fear, milkmen knew all about it before, whether they practiced it or not; and the exposure only taught purchasers the necessity of a little scrutiny and caution, leaving them to obey this necessity or not, as they pleased.

From A.C Hobbs (Charles Tomlinson, ed.), *Locks and Safes: The Construction of Locks.* Published by Virtue & Co., London, 1853 (revised 1868). (My thanks are due to Steve Bellovin for having first brought this text to my attention almost ten years ago.)

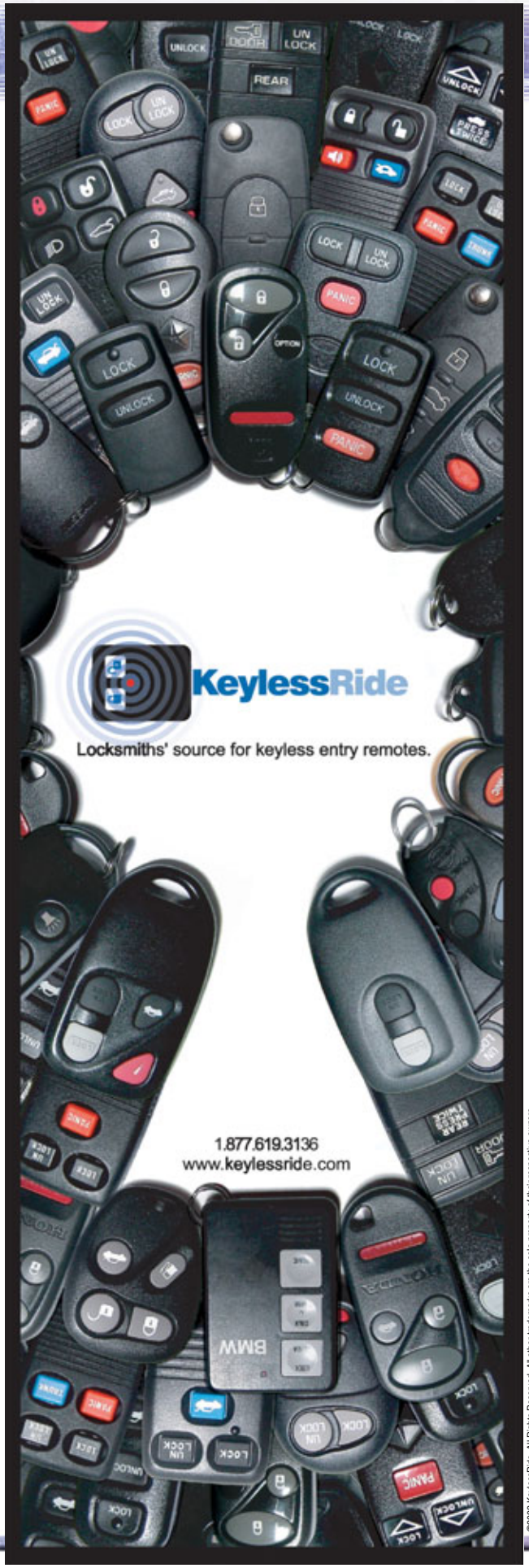
Ironically, while Hobbs' reasoning today enjoys wide acceptance among practitioners of computer security and cryptology, the locksmith world seems to have at least partially reverted to embracing security through obscurity. Predictably, the dearth of open literature in that field makes it quite difficult for a potential user to be sure whether a given lock suffers from known attacks. One can only wonder whether their reticence is more for the benefit of the security of the profession than for its clients.

Next month I will tap into this industry's master key experts to get their opinions and philosophical debates on this topic and the material presented. Then I would like to hear from you. If you have thoughts you would like to share, send them by mail to: Greg Mango, National Publishing Co., 1533 Burgundy Parkway, Streamwood, IL 60107; or by e-mail to: natllock@aol.com. Be sure to send your e-mails to my attention so it doesn't get lost in the e-mail abyss. I am eager to hear your sentiments.

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Letters

The National Locksmith is interested in your view. We do reserve the right to edit for clarity and length.

Prize Won

I received the S & G safe deposit box lock last month as my Technitip prize and have had a good time checking it out. I have never worked on safe deposit box locks, so this was an educational experience. I had no idea that they were that simple. I think I should add that to my list of services offered. Thanks very much.

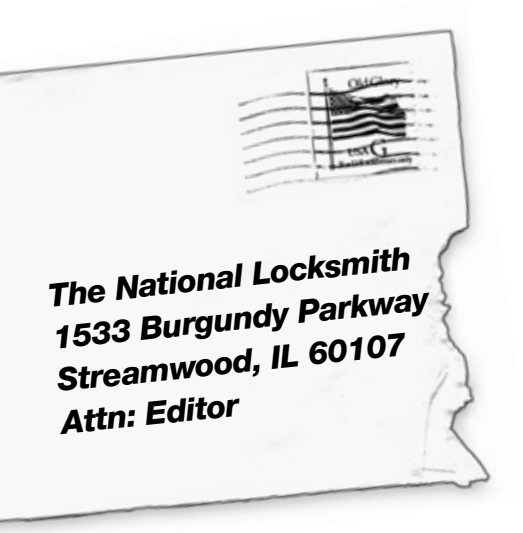
Steve Shields
California

They Don't Seem to Care

Here is another good reason why I do not work for AAA roadside service anymore. I am a locksmith in a small resort town, and for many years have done service calls for AAA, as I was the only locksmith in a three county area with many resort communities in the Texas hill country. On August 10th of this year, I received a check from AAA Club Services LLC, for the amount of $358.33 for an invoice that was not mine, dated 07-06-02. The next day I received another check for $170.00, again not my invoice, dated 07-05-02. I made a copy of both checks on August 12th and mailed them with a note stating that these were not my invoice numbers and that I had not done this work, please advise what I should do with the checks that I had.

On September 10th I called AAA at their 800# and asked to speak to a supervisor. I told this lady that I had received two checks in error from the Administrative Office in Santa Ana, CA, and gave her the check numbers asking her to contact her office for advice as to what to do with these checks. As of this date I still haven't heard back from anyone at AAA, it seems that they do not care that some other service provider that did the work has not gotten paid since last July for services rendered to AAA. To think it could have been me!

Bill Edwards
Texas



Technitip Winner

Thank you to *The National Locksmith* magazine and Jake Jakubuwski for the nice prizes in the monthly Tip's column and the year-end contest. I received the High Tech Tools kit about two weeks before the January issue of the magazine came out. I was very surprised and after looking at the invoice, figured out that it was a year-end prize. I was elated and have placed the kit in my wife's personal vehicle for emergency use when away from work and home.

The North Carolina Locksmith Association recently had Jake at our meeting to teach his Tip's and Tricks class. I got to meet Jake and have become good friends as well.



God bless you Jake and the staff of *The National Locksmith* magazine.

Wayne Gow
North Carolina

Silca Bravo Winner

I received my new Silca Bravo II a couple of days ago and am just getting time to try it out. It's the heaviest duplicator I have run into in a long time and appears to be extremely well made. The gearing is perfectly smooth, the fit on all the parts is exact, and the machining is very nicely done. I checked the adjustments (which were "right on" as it came out of the carton) and proceeded to give it a spin. After duplicating the same key, one from another for twenty-five times, I will say that it lives up to its reputation for accuracy. The difference from the original key to the 25th generation key was .002 thousandths. That's pretty darned good. I especially like the micrometer adjustment. That's a feature more companies should incorporate into their duplicators. Thank you very, very much—it's a great machine.

Steve Shields, CPL
E-mail

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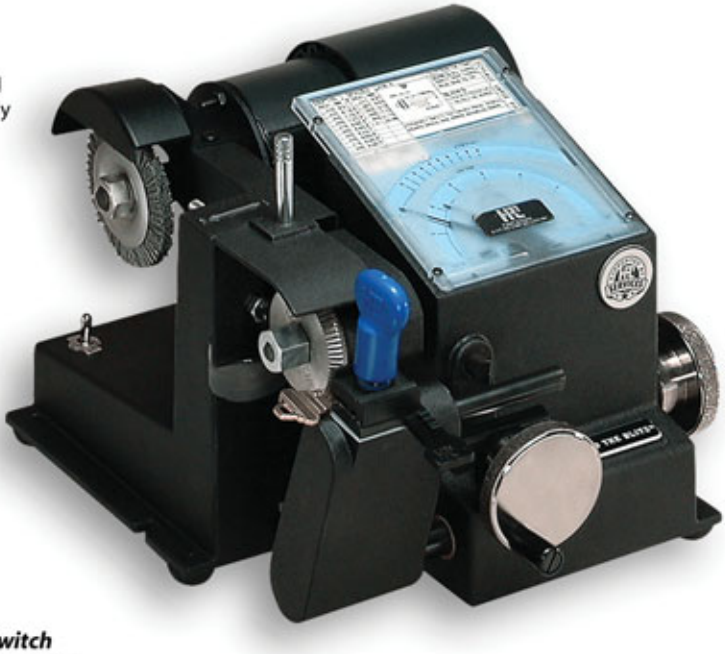
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Bianchi 101

The Bianchi 101 combines features of both manual and semiautomatic key duplicators. The heavy-duty 37-pound machine has a cast iron body which reduces vibration, extends the cutter life, and reduces noise, yet has a small footprint. The machine features a one-piece jaw alignment system to ensure a parallel relationship between



the jaws, cutter and tracer point; "L" style jaw handles to make key gripping easy and hard alloy handles to reduce both inner and outer part wear and overall replacement frequency. The machine's jaws rest directly on the jaw pin for reduced tolerance. Available in 12-, 110- or 220-volt configurations, the Bianchi 101 has a lateral carriage lever to ease the cutting process.

Morse Watchmans Key Bank Safe Management System

Morse Watchmans Inc. of 2 Morse Road recently introduced a new key control solution—the expandable, streamlined KeyBank™ Safe Key Management System.

With its computerized key storage cabinet, electronically monitored Smart Keys and detailed reporting software, the KeyBank Safe prevents lost or stolen keys. Featuring an innovative, space saving, self contained design, the standard model (16" W x 65" H x 21" D) holds 456 keys and is expandable to accommodate 2000.

KeyBank Safe's pullout cabinet houses the color-coded tamper proof Smart Keys. KeyBank Safe instantly records the access history of each key and user. It offers constant and reliable 24 hour-a-day access and control.

CyberLock® Safe Locks

CyberLock® technology has been incorporated into safe locks, bringing a full-functioning access control system, and most importantly, an audit trail to safes. The new safe lock system allows management to restrict each authorized user's access to pre-specified dates and times, and provides a record of entries and attempted entries. Managers can quickly disable lost keys, and preset key expirations.



Benefits of the system include delayed or multiple-key access, an audit trail of activity that takes place at the lock and in the key, and the ability to program a CyberKey to automatically expire within minutes, hours, days, months, even shift-by-shift, depending on the specific task that has been assigned to the user. In addition to safe locks, CyberLocks are available for doorways, cabinets and even padlocks. Because the access privileges reside in the CyberKey, one key can be programmed to access safes, cash drawers, server cabinets, and doorways throughout an institution.

Secura Key Extreme Keypads Introduced

New lines of stand-alone access control Keypads from Secura Key have been designed for extreme conditions. Utilizing the latest developments in piezo switch technology, these products have no moving parts or buttons that can stick or wear



out. Meeting tough IP68 standards for water resistance and a variety of MIL standards, the Secura Key stand-alone keypads in solid aluminum housings are virtually indestructible. Up to 200 users can be enrolled right at the keypad with no external controllers or computers.

Secura Key offers a 2-by-6-button narrow version for mullion installations and a 3-by-4-button wall switch model. There is also a recessed-mount flush version of the 2 x 6 keypad and an illuminated, brass finish version of the 3 x 4 surface-mount model.

Secura Key keypads are backed by one of the most comprehensive warrantees in the security industry.

SDC Magnetic Shear Lock

Designed for aesthetically superior and high security access control applications, the SDC 1565 Hi/Shear EMLock is capable of an unsurpassed 2,700 lbs. holding force. The concealed mortise design of the Hi/Shear EMLock is compatible with high profile glass entrances and metal doors and frames.



To eliminate mechanical interaction to provide door alignment, the Hi/Shear is equipped with a proprietary door static sensor and alignment adjustment to ensure the door is at rest and properly aligned before relocking, preventing stress to glass doors from wobble while closing and providing consistently reliable operation.

Monarch Standardizes 182L Lever Trim

IR Security & Safety has made the Monarch 182L lever trim standard on its Monarch 18 Series rim, surface vertical, mortise, and three-point latching touch bar exit devices, as well as on XX Series rim crossbar devices. New features of the 182L trim include heavy-duty escutcheon, compression springs, and easy field handing. The 181K is the knob version of the new trim.



The 182L and 181K replaces the company's LE and KE trim on the 18 Series and XX Series exit devices.

The new trim is available with a wide variety of lever designs, including Avalon, Dane, Capri, Sutro and Quantrum, as well as the 181K knobs. Finishes include US3, 4, 9, 10, 32 and 32D.

Securitron BPS Series Power Supplies

Securitron BPS series of filtered and regulated DC battery charging power supplies are rated Class II by Underwriters Laboratories. The Class II Listing means that the output wires need not to be run in conduit saving substantial system installation cost. The current limiting series of power supplies come in 12 separate models ranging from 1 to 15 Amps at 12 volts and 1 to 10 Amps at 24 volts. The units are furnished in wall mount hinged steel enclosures with safety warning lamps on the front exterior. Sealed lead acid battery packs may be added to provide automatic backup power or the supplies may operate independently.



All units greater than 1 Amp capacity includes either 4 or 8 separate circuits. Each output circuit is protected by automatic circuit breakers with LED indicators showing the status of each zone. A short circuit on one zone is automatically switched off while the other zones operate normally. Slide switches are provided to disable or reset each output.

Jet Hardware

The newest version of the NGS equipment for all 2003, 2004, and 2005 Ford and Mazda automobiles is now available from Jet Hardware.



Continued on page 18

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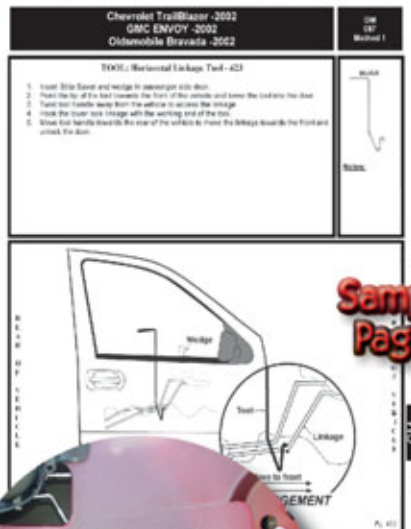
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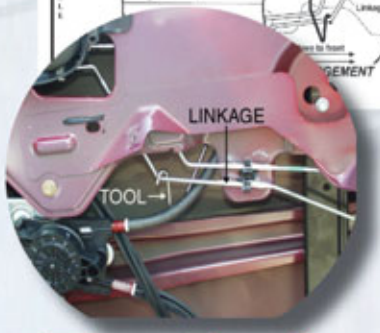
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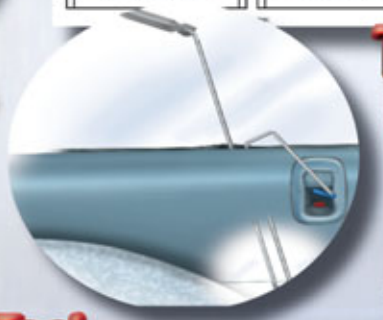




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Saturn				2003-2004	Codes:	H0001-3988				SN04
Depth & Space/ Framon				Mfg. - Key #	Keying Kits	1200CM	CF215	Cutr	CW-1011	
.315	1	1.033	.308	ILCO P1110	ignition	Framon	.092	Blk 3	incr .025	
.290	2	.942	.400	EZ B91, B96	A-49-101, SK6400	ITL	#519 -flt3 -ins1			
.265	3	.850	.492	Tayl	door--trunk	Guide Keys	AGK621			
.239	4	.757	.584	Strat	A-49-101, SK6400	Curtis	GM-6	GM-6A	15W-45	
	5	.665	.676	Bär		KWY				
	6	.573	.768	Curt B-96						
	7	.481	.860	Sil						
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Continued from page 15

The NGS-XL will also operate all prior Ford's that are Transponder equipped. Included is the OBD cable for remotes. Jet's package program includes five free H72-PHT Transponder Key Blanks and two free Ford Remote Controls.

Current owners of NGS-1 machines may purchase their updates that come with a free "UBP" cable for Remotes and two free Ford Remote Controls.

A special leasing plan for the new NGS-XL is now available to qualified buyers. Contact your Jet Distributor for details and leasing applications.

Numberall Rotary Hand Stamp

Numberall Stamp & Tool Co. Inc has introduced an improved model of the classic Single Wheel Rotary Stamp.

This rugged, balanced rotary hand stamp is made of high-grade tool steel, heat-treated for severe usage. Each Rotary Stamp features a rotating type wheel, which is engraved with numbers or letters. A mark is made by selecting desired character (visible in the index on the side of each wheel) and striking the top of the tool with a hammer.



The complete set of 3 Rotary Stamps contains the entire alphabet and numbers. The 3-piece set takes place of a total of 42 easily misplaced single hand stamps. Their compact size saves valuable bench space and offers quicker character selection. Character sizes from 1/16" to 3/8" are available. The Rotary Stamps are available individually or in a deluxe 3-piece set with wooden storage box.

RS2Technologies Easy Access Control Package

Access It!® Lite from RS2Technologies is a user friendly, entry-level, out of the box access control software package, designed from the ground up with ease of use as a cornerstone. The package can have up to 32 readers, access levels and time zones and up to 32 time zones.

The familiar Outlook style interface, along with clever wizards, results in an operational access control system in minutes instead of hours. Frequently performed operations, such as adding cards and running reports are transformed into simple, step by step tasks through the use of the built in wizards. The package can be easily upgraded to the company's flagship Access It! Software package.



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Framon Spacing Block Rack

Framon code machine owners can now purchase a new spacing block rack for the #1, #2, and #2J code machines. The rack can hold up to six spacing blocks. Machine owners can install the rack onto the machine with the



supplied hardware, which requires drilling and tapping two holes into the machine's base. Older code machine owners with the wooden base can attach the rack with two wood screws. The rack is made of aluminum and has an anodized finish.

Adrian Steel Trade Package for Freightliner Sprinter Van

Adrian Steel now offers trade specific interior packages, partitions, shelving and modules for the new Sprinter Van from Freightliner. The new Sprinter is currently available in three wheelbase lengths and two roofs heights with a cargo area that features driver sliding side door and hinged rear cargo doors.



Sprinter interior packages from Adrian Steel feature layouts, which are based on the Sprinter 118" wheelbase van. Interior shelving and module heights used are 46" for standard roof and 60" for high roof Sprinter van models. Add shelving and modules to interior packages for longer wheelbases or design your own custom arrangements.

Each Sprinter van interior package includes a full cab/cargo area partition with a hinged center key-locking door. Heavy-duty adjustable shelving provides convenient storage for parts and tools that you can count on.

Yale Classroom Security Line

Yale Commercial Locks and Hardware has a new addition to the 7100 series line of exit devices—the double cylinder



function, rim, SquareBolt® and mortise exit devices.

The 7100 Series Double Cylinder Exit Device is the perfect complement to school applications utilizing other Yale classroom security products, such as the 5418LN Classroom Intruder cylindrical lock and the 8708 Classroom Function mortise lock. Similar to the Classroom Intruder locksets, the 7100 Series allows locking from inside the classroom, eliminating the chance for exposure to threats outside the classroom. TNL

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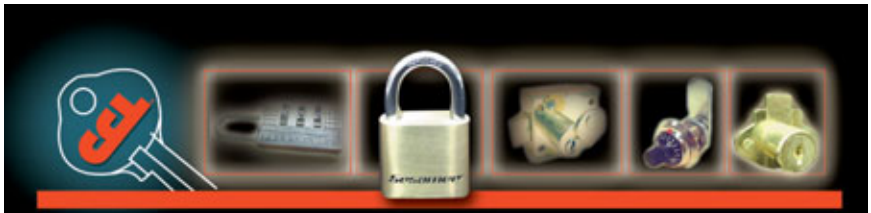
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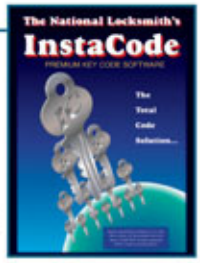


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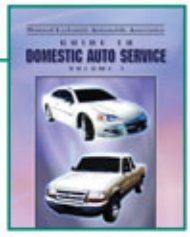
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NLAA Guide To Domestic Auto Service

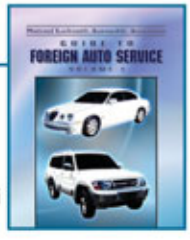


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NOTE: NLAA members will already have received these materials.

NLAA Guide To Foreign Auto Service



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The National Locksmith Guide to Motorcycles Volumes 1 & 2

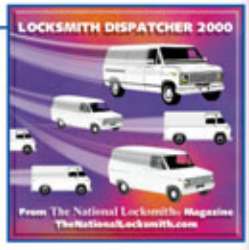


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KABA® MAS LC Series Lock



by
Dale W. Libby, CMS

Electronic locks are here to stay. We must deal with the changing times and upgrade our information database, and the addition of the Kaba Mas LC electronic safe locks is a great start. The lock is easy to install, easy to program, and reliable. Let us go through a typical installation and then discuss opening procedures and other aspects about this lock.

Photograph 1, is the back of my test lab safe. We will be mounting the LC lock in a Vertical Down (VD) position with the active part of the bolt towards the door opening edge. The edge of the cutout in the horizontal bolt that comes into contact with the edge of the lock first when turning the bolt handle is considered the active edge in this application. If there were a handle cam, then the edge of the cam that first contacted the bolt of the lock would be the active edge.

The LC series Kaba Mas combination lock is multi or non-handed units. This means the same thing in practice. These locks can be mounted in any of the conventional configurations with the active part of the combination bolt up or down, right or left. The really interesting part of this unique lock is that the combination lock bolt pushes in at a 45 degree angle; not up and down as in other electronic locks or as a rotating swingbolt arrangement.

In *photograph 2*, I am holding the lock with the bolt down (Vertical Down) and the connecting cable in the up or top position. The cable is then routed through the safe spindle hole. The cable is carefully placed in the lock case cable channel and the lock is then secured by three 1/4 x 20 provided lock-mounting screws. There is an identical cable channel on both sides of the lock for any mounting configuration.

To make it easier to see the correct mounting of this lock, I have removed the bar that connects the safe door handle to the horizontal movable bolt bar. In *photograph 3*, the mounted lock and the active part of the bolt facing the bolt bar cutout has been secured in the correct alignment. The inactive part of the combination lock bolt in this LC Kaba Mas lock is to the left (in this picture) at an angle and shows the true angled thrust of the combination lock bolt.

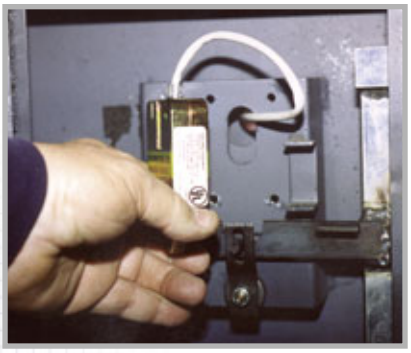
When installing any electronic combination lock, it is important to make sure that there is no bolt end pressure. There must be clearance between the end and side of the bolt and the moving parts of the safe that activate the safe door locking bolts. A small die grinder or Dremel tool can be used to clean up any burrs or clearance issues in the bolt area before mounting the lock.

Getting a little ahead of myself, I have entered the factory preset

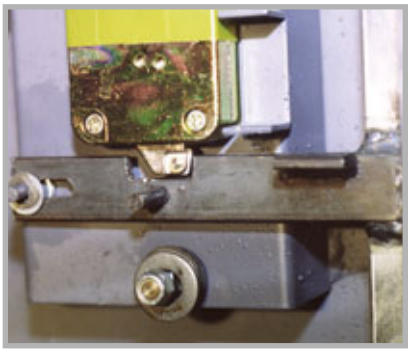
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1. Inside mount for Vertical Down (VD) Kaba Mas LC electronic lock.



2. Bolt Down, Cable Up. Route through spindle hole in door while aligning the cable through the cable channel.



3. Handle to bolt bar has been removed. Lock is mounted with the square part of the bolt next to the active part of the cutout.

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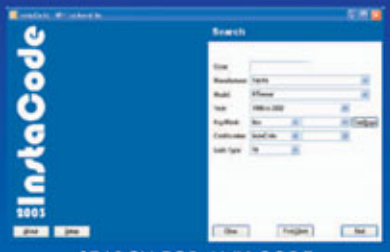
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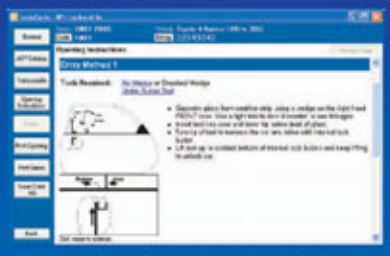
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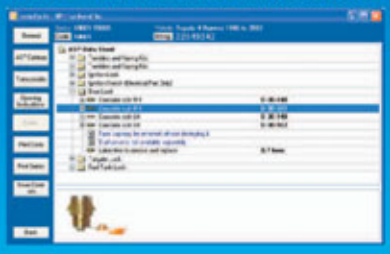
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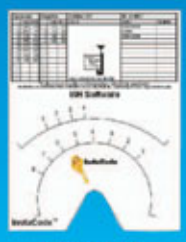
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4. Bolt being pushed sideways into lock at an angle after factory combination entered (50-25-50).

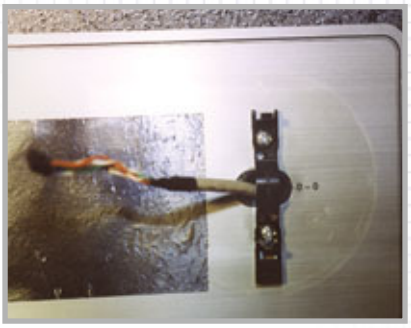


7. Keypad is pushed onto fixture where it locks into place. There is a black button on the bottom of the lock that unlocks keypad from holding fixture when changing batteries.

combination of 50-25-50 into the non-mounted keypad to see if the lock works. In *photograph 4*, the combination lock bolt has retracted partially into the lock case and it is riding up on the cutout edge of the horizontal safe door bolt bar. It looks like it is pushing up, but it is really pushing at an angle into the lock case.

When the safe handle is fully thrown, the combination lock bolt rides atop the horizontal bolt bar. *(See Photograph 5.)* With this particular lock there is no pre-drilled holes in the case for mounting of relock plates.

Let's go to the front of the safe. The first thing to do is mount the holding fixture or keypad bracket to the face of the door. There is an arrow on this bracket fixture and it should be mounted pointing up. The bracket is pre-drilled to be attached to the screw holes for traditional dial ring screw (8x32-inch) holes.



5. When safe handle is fully thrown, the combination lock bolt rides atop the horizontal bolt bar.



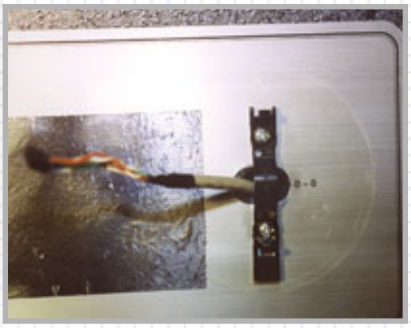
8. Bottom of keypad. Battery is held in place by spring clip.

Photograph 6, is the mounted keypad holding fixture with the cable from the lock passing under and to the left of the bracket.

According to the easy to follow directions, the 9-volt alkaline battery should then be connected to the polarized plug and then the keypad should be plugged into the cable. Again, there is a polarized connector on the back of the keypad for this. The lock will beep twice when everything has been connected correctly. *(See photograph 7.)*

Another feature on this lock is that there is a button on the bottom of the keypad. When pressed, it releases the keypad from the fixture to change the battery. On earlier models without the button, there is a slot at the bottom of the keypad to allow you to put in a regular screwdriver to pry the keypad gently from the holding fixture. Even on this unit that has the button, the slot for the screwdriver is still present.

There is a battery clip that holds the 9-volt battery securely in place and has the added feature of holding on the battery-connecting clip securely in place as well. In *photograph 8*, you can see the underside of the keypad. At the top of this photograph you can better see the keypad button that helps in removing the pad when the battery



6. Cable is passed under and to the left of the holding fixture, which is fastened to the door with 2 screws at the dial ring mounting holes.



9. Bolt and solenoid. Arrow points to drill position for side attack.

needs changing. *See Arrow in this photo for the button.*

Also shown is the piece of tape around the lock with the phrase "Cover Removal Not Recommended". With that in mind, I carefully cut the tape and removed the cover. What better way to see the insides of this rather ingenious and straightforward uncomplicated electronic combination lock.

With the cover removed there is not much to see. There is a circuit board, a solenoid mechanism, and the combination lock bolt. *(See photograph 9.)* In this photo, the active part of the bolt is to the left and can be clearly discerned.

On the back of the solenoid there is a large thin disk. This is the target for a side drill attack. The arrow in this photograph shows the position to drill for this large 1/2" disk. The disk in photograph 9 is in the out position. To quickly open the lock, drill the side of the case 1-1/8" towards the bolt from the spindle hole on the active side of the lock.

Continued on page 28

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How do we determine the active side of the lock? We have to know which way the handle moves to determine the active side of the combination lock bolt. First, we determine the position of the lock by viewing the cable channel through the spindle hole. If the cable goes right at the bottom of the hole, then the bolt is to the left. If the cable goes up (as in this case), the bolt is down or mounted vertical down. The same is true for all positions. The bolt is located opposite the direction of the cable at the bottom of the spindle hole as it goes out the far side of the lock.

Once the handing is known, then the active side of the lock must be determined. If the lock is mounted Vertical UP or Vertical Down, then the active side of the lock bolt is towards the opening edge (opposite the hinge side) of the safe door.

If the lock is mounted Horizontal Right or Left, then the movement of the handle must be resolved. This can be done by asking the customer (you have a 50-50 chance of getting it right) or by going to your safe library and determining the direction that the handle turns to open the particular safe door bolt configuration.



10. Bolt with flapper. Solenoid depresses spring-loaded flapper to allow the bolt to enter the lock.

Once the handing is known, the depth of the lock can be measured through the spindle hole. Add a 1/2" depth to the lock face dimension (not the cable channel). Go 1-1/8" from the spindle hole center towards the direction the bolt. Drill in and look. The two halves of this lock are split equally and there is an easy to see line between the two halves. Drill directly on this line at the approximate point and you will hit the disk on the back of the solenoid. Press in while drilling slowly and turn the safe handle at the same time. If you are on the active side of the lock, the safe handle will turn and it will open easily.

As opposed to other types of electronic locks, the solenoid does not block the movement of the combination lock bolt, nor does it block a bolt that blocks the movement of the bolt. The solenoid in this lock pushes in a 'flapper bar' on the bolt. *(See photograph 10.)*

Below the flapper is a stainless steel ball bearing and a spring. When the flapper is up, it rests against a cutout in the bolt channel. This cutout can be seen just to the right of the solenoid pin. When the correct combination is entered, the solenoid pushes the flapper down flush with the surface of the bolt. The lock bolt can then be easily forced into the lock body by means of turning the safe handle.

If you want to drill from the face of the door, you would drill where the solenoid and the flapper meet. Again, you would have to discern the alignment of the mounted safe lock and determine the active side of the bolt. Once this is known, you would drill 1-3/4" towards the bolt end, and then either 1/4" right or left, towards the active side of the bolt. The flapper is on the active side of the bolt and this is what you are shooting for.

Once this lock has been drilled, it must be replaced. The directions for installing and servicing the lock are good, easy to understand and complete.

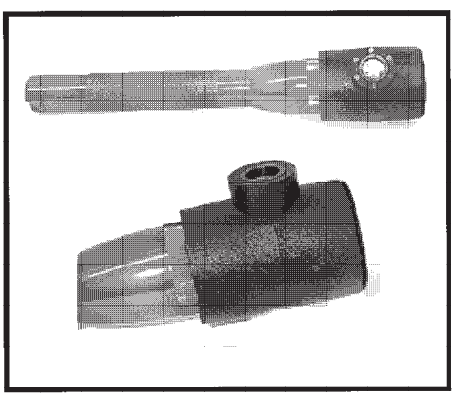
Changing the combination for a single user is easy. First, open the door and lock it open. Then, just press the Enter Key and number one. Enter the old combination once, the lock will beep, and then carefully enter the new combination twice, pausing between entries to let the lock beep. Try the 6 number combination several times before closing and locking the door. Have the customer try it too.

The LC series locks from Kaba Mas are reliable and easy to install. Start retrofitting with Electronic Locks and Prosper.

For more information contact: Kaba Mas Corporation, 749 West Short Street, Lexington, KY 40508. Phone: 888-950-4715 or 859-253-4744; Fax: 859-255-2655; Web: www.kaba-mas.com. Circle 262 on Rapid Reply. TNL

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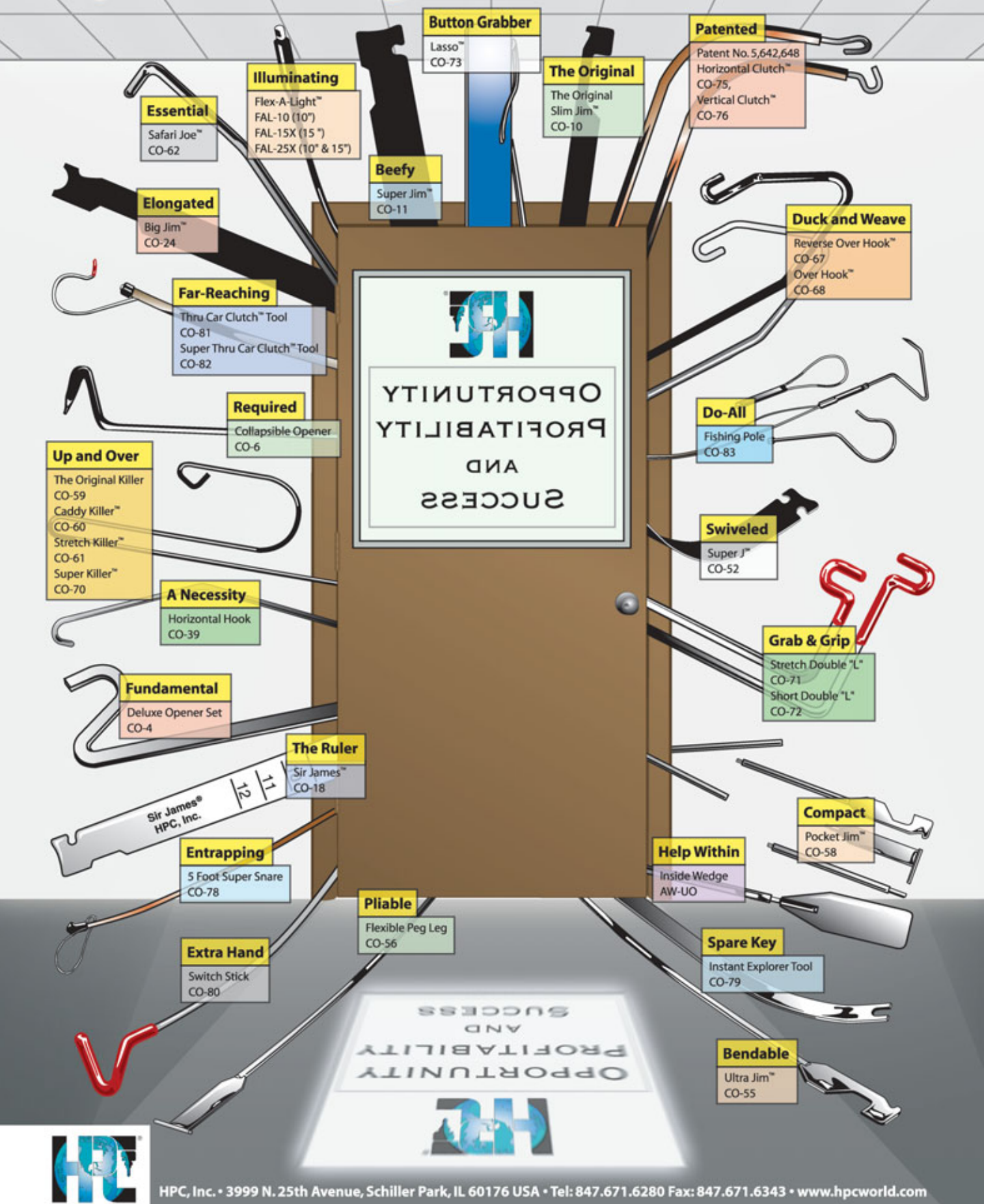
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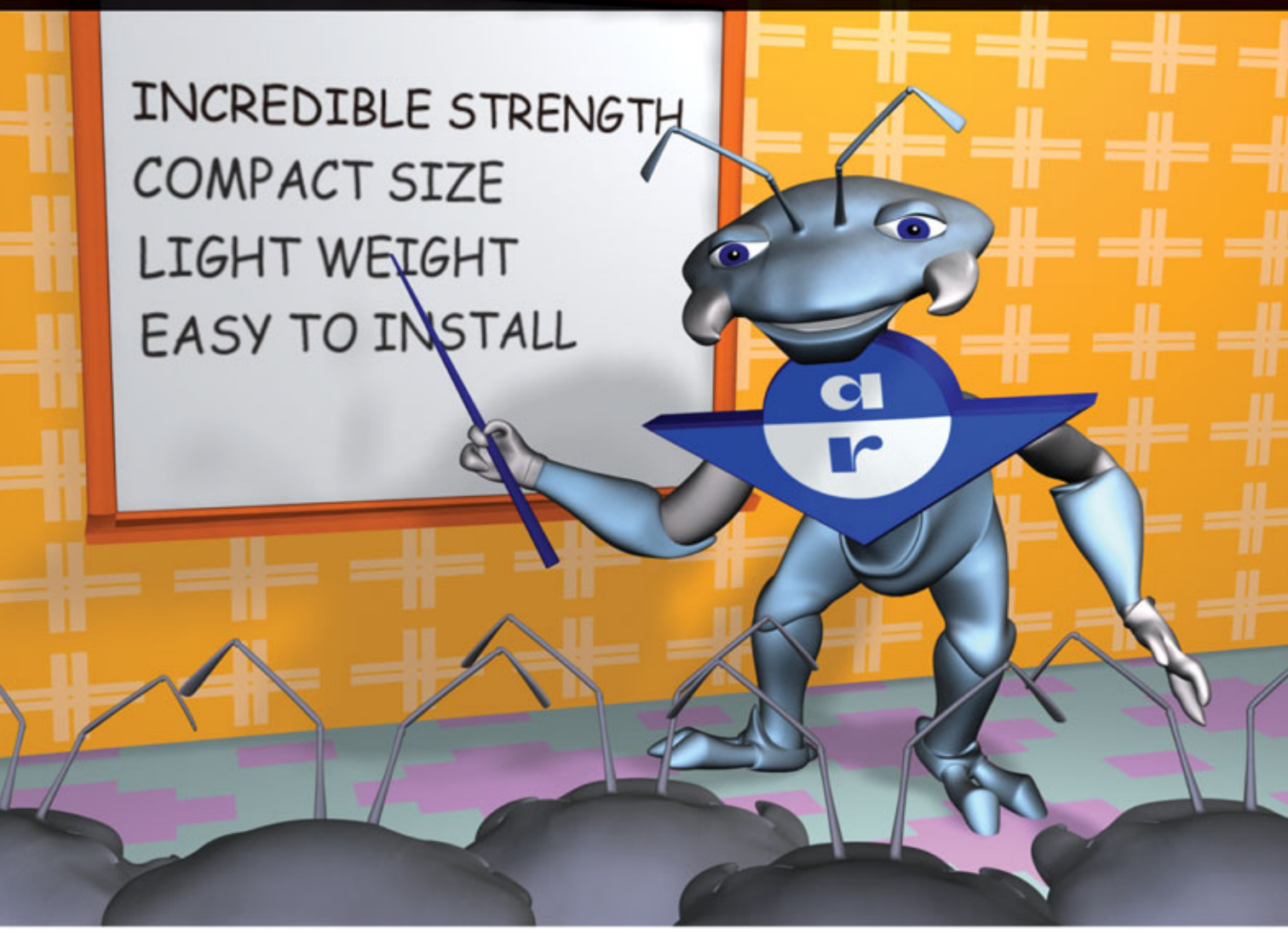
A dealer recently called us and said, "We've had a burglary." I was concerned to know whether the safe was compromised, it wasn't. We got the locksmith the

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information he needed and he got his customer taken care of in no time flat. Once we brought the safe back and got a look at it, we found that the Adesco design had paid off. Thanks in part to our tactic of looking at the product failures of our competitors so we can make ours stronger and better.

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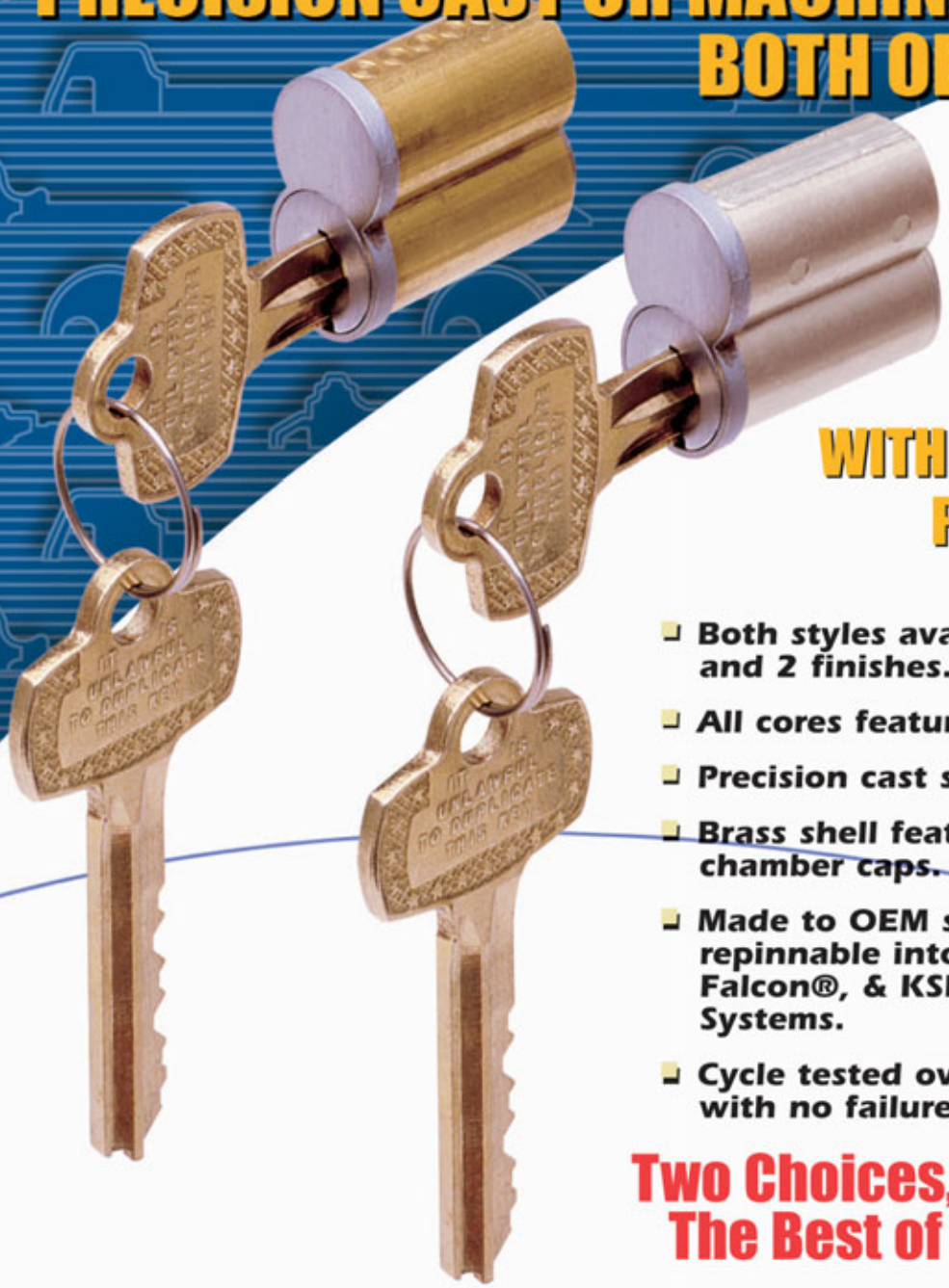
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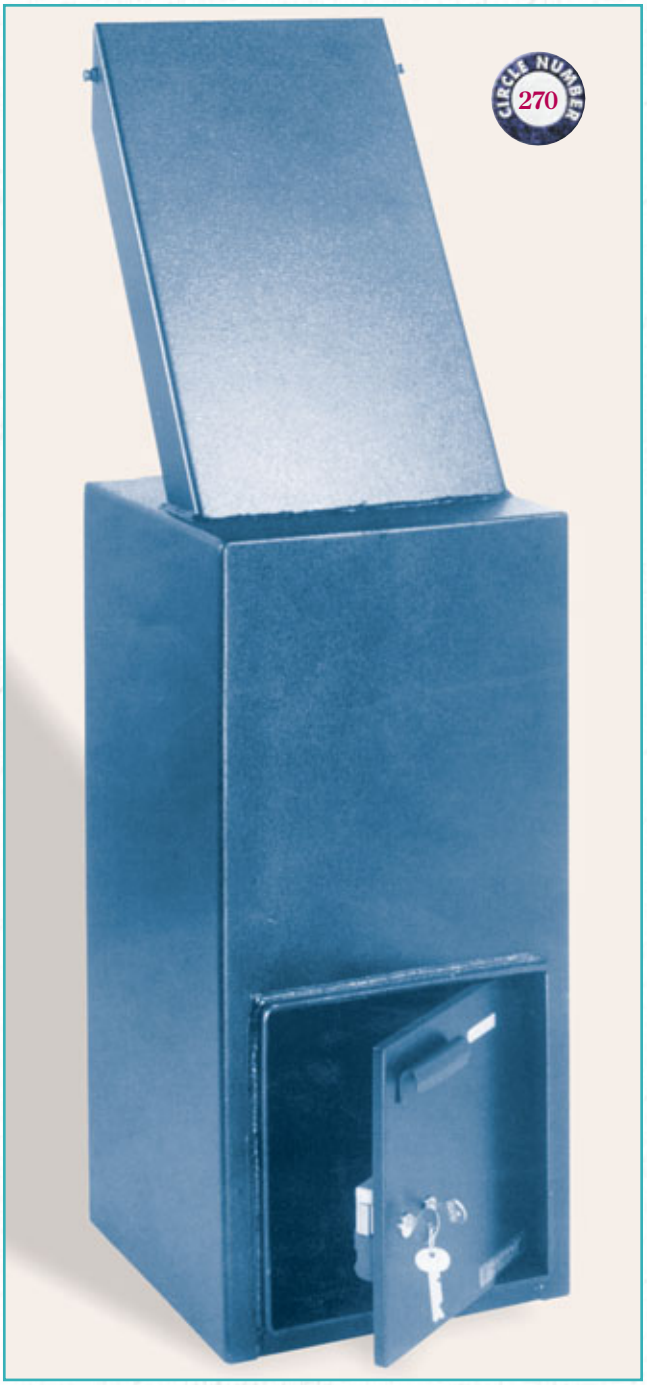
• PermaVault •

Drop box sales are a potentially lucrative market for locksmiths. The units, which are available with many options, including mechanical or electronic locks as well as high security key locks, are frequently used by apartment complexes for rent drops, hospitals for medication or important document drops, and municipal complexes for utility payments.

The units can be sold in numerous applications to keep deposits secured and out of sight, reducing the threat of damage by forcible entry at windows or doors wherever deposits are visibly lying on the floor below a regular mail slot. In each situation, the public can make a deposit outside of normal business hours without business access.

PermaVault executives say that depository safes, such as the PRO-903-M, PRO-2217 and PRO-2225, provide security and protection from the elements. Depositories can be installed through a wall, utilizing an adjustable chute. With PermaVault, many safes also have optional covers and locks, increasing security by allowing access to select individuals.

Drop boxes limit the amount of cash exposed to robbery and minimize the opportunity for employee theft. In addition, with a drop box in place, employees will be more aware that their cash handling performance is being monitored.



According to PermaVault, a cash register is not a safe. The company says cash drop boxes prevent the snatch and grab which could happen with an open cash drawer, eliminates the "I gave you a $20 bill" scam, minimizes the impact of honest change making errors, improves employee morale by demonstrating concern for their welfare and safety and also eliminates co-mingling of employees with those who are counting cash.

In addition to cash drop boxes; PermaVault also manufactures "B" rate rotary hopper safes, cash till safes and front deposit safes. The company also manufactures custom products to meet specific needs of customers.

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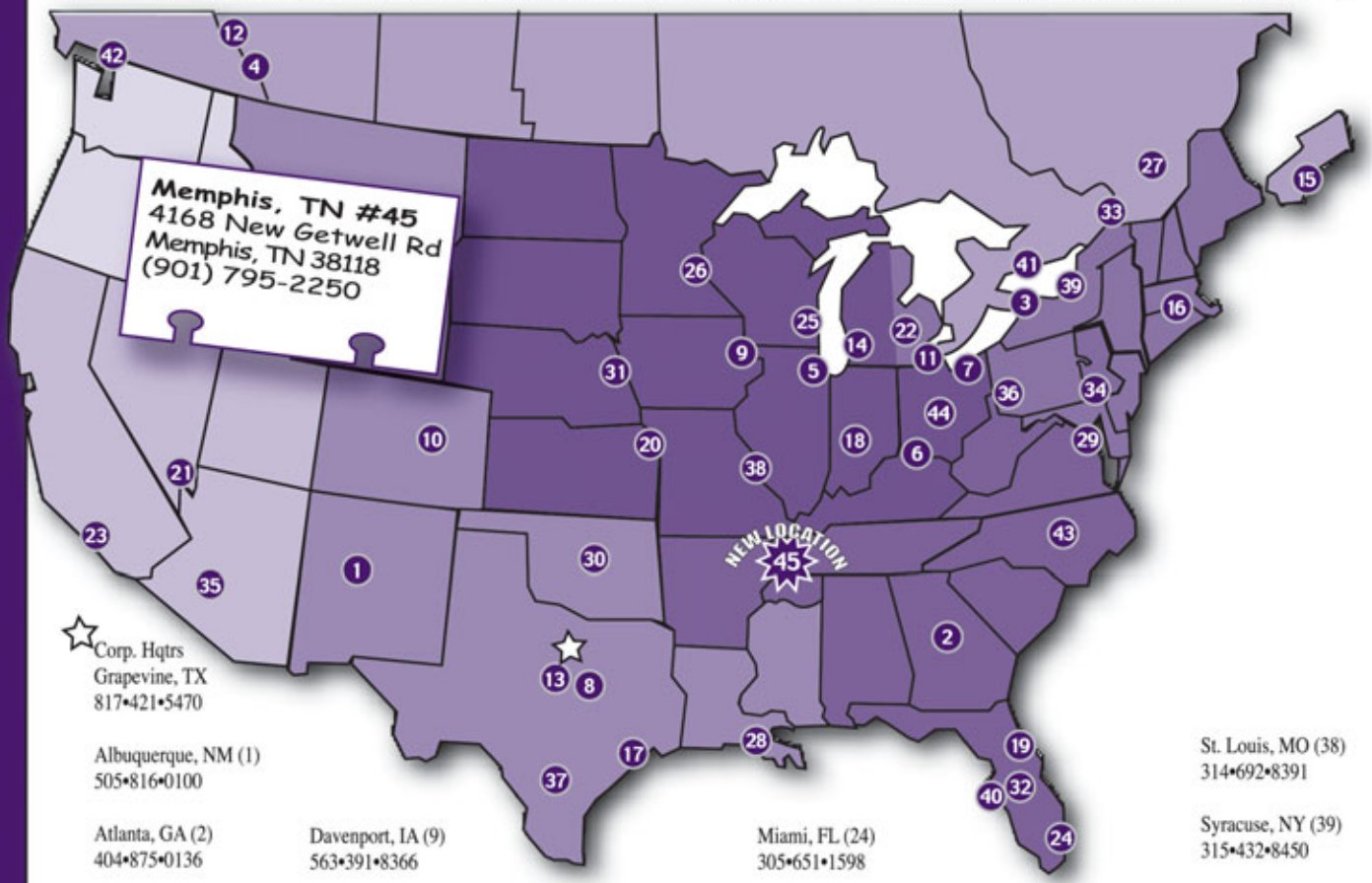
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2002 Jeep® Liberty

The Repalcement To The Cherokee

Part I



1



The totally new 2002 Jeep Liberty is the replacement to the Cherokee. Actually, it looks like a squashed Grand Cherokee. It has a Chrysler style transponder system that can be accessed with the DART tool from Strattec. It uses current standard Strattec tumblers with 7-cuts in the doors and 8-cuts in the ignition.

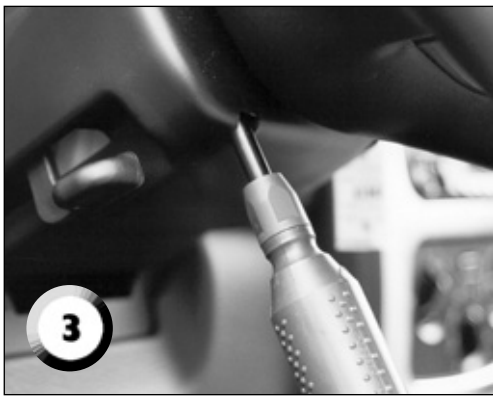
Ignition Lock



The ignition lock cylinder is the active retainer type. This particular one is used on several Chrysler-Jeep models.



by Michael Hyde



The lower plastic shroud must be removed to get access to the active retainer. There are two shroud screws and they are Torx #20.

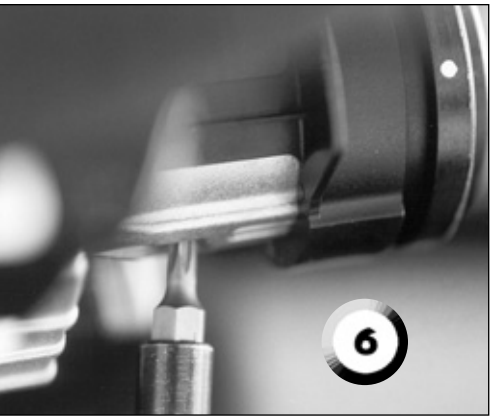


Lower the column height adjustment lever out of the way and separate the lower plastic shroud and remove.



The face of the lock cylinder has an induction transponder coil encircling it.

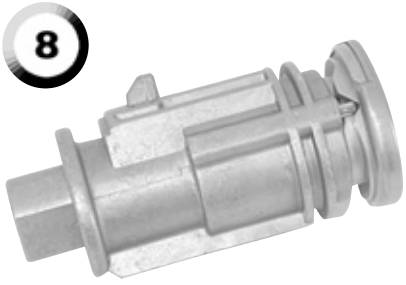
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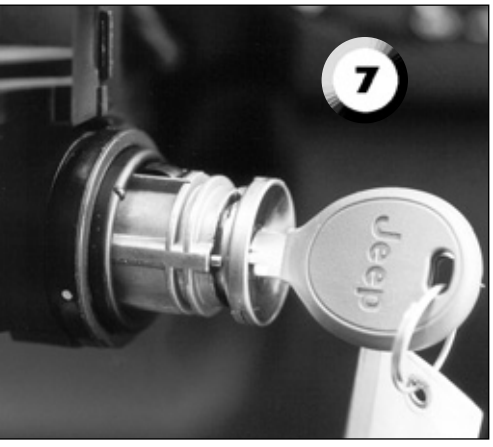
You must have a working key to turn the ignition cylinder on and depress the retainer. The retainer sits on the bottom of the housing.



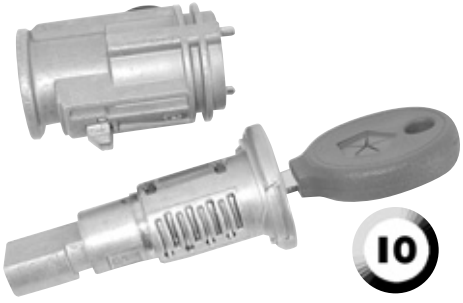
Once again you will need a working key to disassemble the ignition lock cylinder. Turn the lock cylinder plug counter-clockwise, or to what would be considered the "ACC" position. Depress the detent to allow the cylinder plug to rotate more and then you can slide the cylinder plug out the front of the cylinder housing.



The cylinder removed from the car. The retainer is square shaped with an angle on the backside. There is no Tru-arc ring to remove.



The cylinder lock slides right out the front without having to remove the transponder induction coil.



The ignition lock cylinder has 8 tumblers in it and they come in from both sides, they call that bi-directional. This lock is also a sidebar lock. The only sidebar lock on this Jeep.

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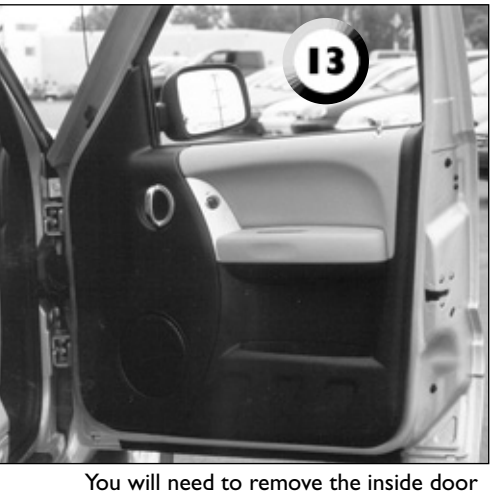
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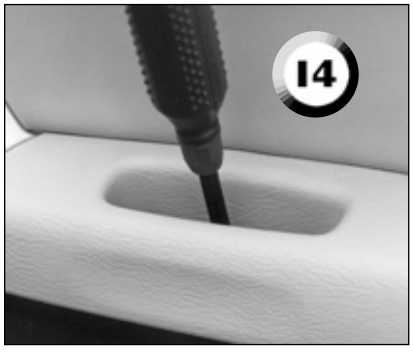
The tumblers used in the ignition will only fit the ignition lock. They are Strattec part numbers 322691 through 322694; the spring part number is 56115.



The door lock cylinder is part of the outside door handle. So many vehicles nowadays don't have a passenger door lock, but this one does.



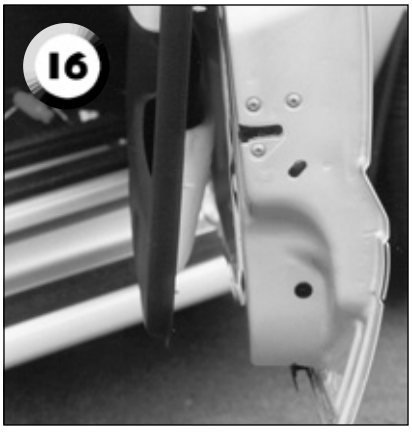
You will need to remove the inside door panel to get the lock cylinder out.



There is a panel screw in the door pull cavity that must be removed.



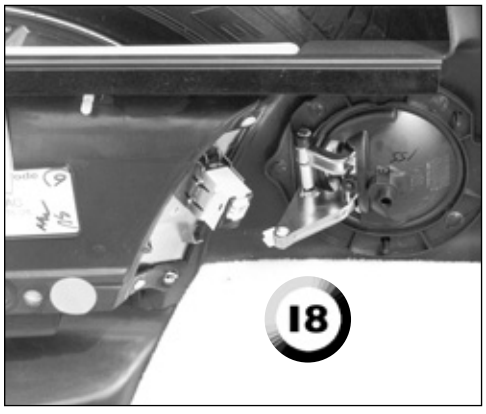
The inside door release handle has a trim screw in the middle of it behind a trim cover that must be removed.



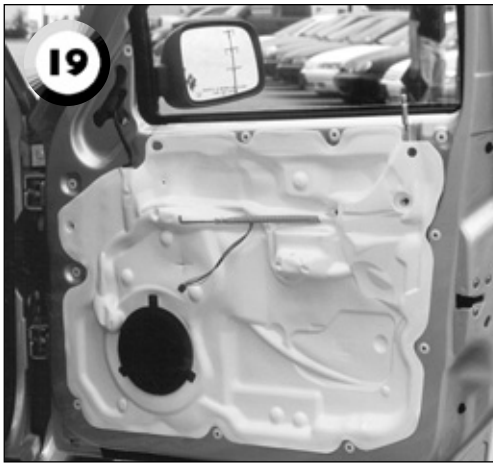
The panel can now be pulled off. The panel uses round plastic push-in style fasteners.



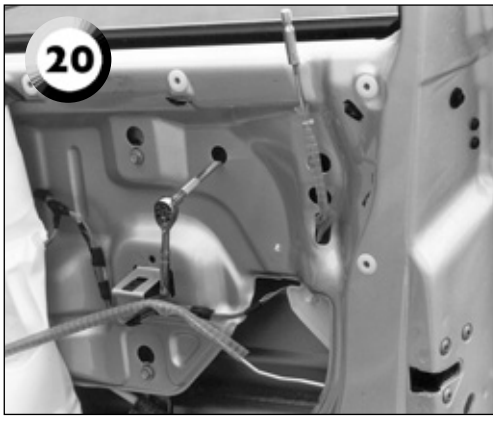
Be careful pulling the panel all the way off as there is an electrical connector that must disconnected.



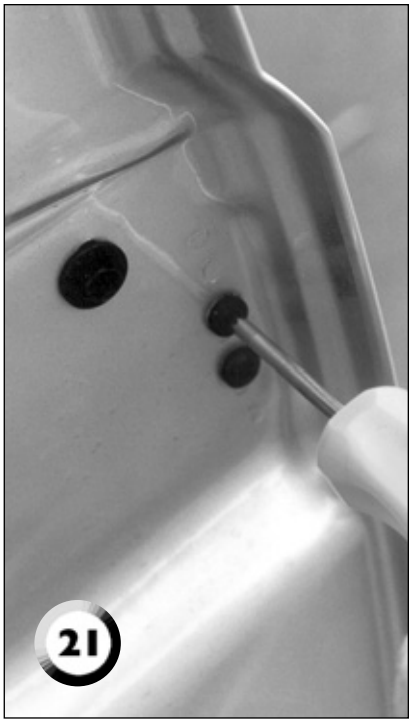
The inside door release linkage will also need to be removed.



Once the panel is removed, you will see the white plastic weather guard. Pull the plastic aside without ripping it.



There are two 10mm nuts that hold the handle to the door. You will need to remove those.



On the rear edge of the door are two screws right next to each other. They also secure the handle in place and you will need a Torx #27 to remove them.

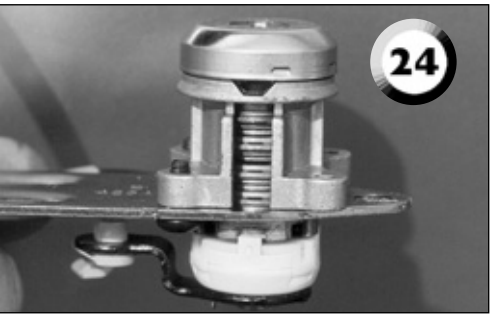
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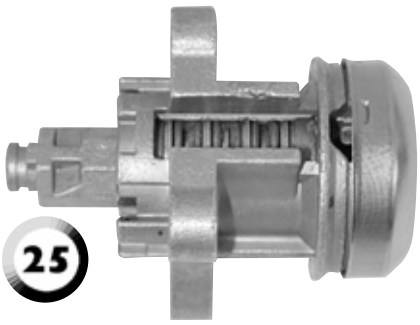
Now that you have removed the mounting screws for the outside handle, the handle is still being held close to the door by the linkage for the handle and the lock cylinder.



There is one Torx #25 screw that holds the lock mounting plate to the outside door handle.



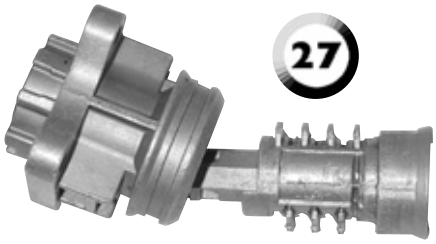
There are two Torx #20 screws that hold the lock cylinder to the mounting plate.



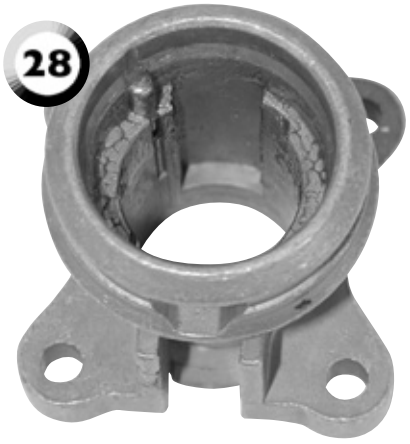
The lock cylinder removed from the vehicle. Notice the large drain hole opening.



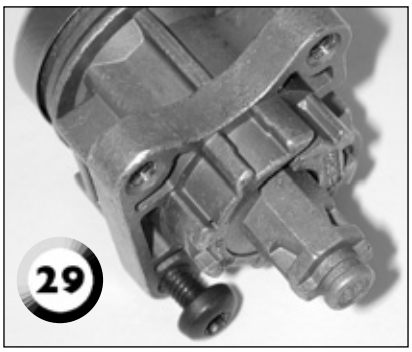
The facecap can be removed without too much trouble and reused. The dust shutter assembly is an assembled one-piece design with two springs that fit into the face of the plug.



The lock cylinder plug will slide out the front of the housing without having to turn it or pick it. There are 7 tumblers in position 2 thru 8.



Inside the lock cylinder housing is a small brass detent with a spring.



The replacement door lock for this vehicle comes with two Torx #20 screws that are self-tapping.



The lock tumblers for the doors are the now current standard for Chrysler-Jeep vehicles and are different than the ones used in the ignition. Strattec part number for the tumblers are 322361 through 322364; the spring part number is 46994.

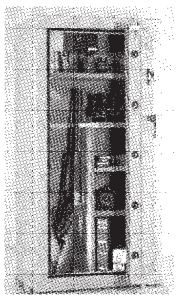


There is no lock cylinder for the glove box.

Next month we conclude with the rear door lock and programming procedures.

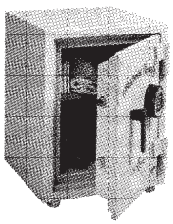
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ASSA Cam & Cabinet Locks

In recent years we've seen quite a lot of development in the high-security lock industry. Nationally, there is a heightened awareness of the need for security on a national, regional, and local level. While there is a new market emerging for advanced, super-high-security systems designed to address a new national threat, today we're going to take a look at some products addressing an often overlooked, yet still crucial, market.

ASSA, Inc., a member of the ASSA ABLOY Group, has for years been manufacturing some of the industry's best high-security lock systems. Today's focus, their line of cam locks and cabinet locks, are part of this heritage.

Cam Locks:

Most locksmiths recognize that ASSA locks are among the best key-control, high-security lock systems. The company's cam lock line is regarded as one of the toughest on the market.

The locks have earned an Underwriter's Laboratory listing of U.L. 437, the rating given to locks that show superior resistance to physical attack or tampering. The locks feature a body and plug made of chromium plated brass. This tough design makes them perfect for use in all types of uses, such as inner safe doors and compartments, cash storage containers, drug carts, gun cabinets, key storage cabinets, and more.

While their physical toughness and UL rating are impressive, they are not unique to ASSA cam locks. What is unique, however, is the ability to be master keyed into the most complex key systems, including any ASSA master key system in existence, without the loss of any combinations. These cam locks use all nine bottom pins and all eight master pins. The locks also use special hollowed out driver pins that enable six-pin ASSA keys to enter and operate the lock.



This allows users to upgrade their security by the installation of these cam locks, without having to reconfigure the entire master key system. ASSA offers a new Double D punch in their 2003 price book to aid in installing the product.

Another key feature of ASSA cam locks is the availability of two versions: a 360° version that allows the lock to be left in the locked or unlocked position, and a 90° version that retains the key and only releases it when the unit is locked.

Cabinet Locks:

Though not generally considered a high-security area, desks are still full of vital information, including financial reports, business research, and other sensitive material. Thus the need for effective locks that protect the information from falling into the wrong hands.

ASSA cabinet locks are 11-pin locking systems that have earned the tough U.L. 437 rating for resistance to physical attack. The locks can be keyed into any existing ASSA master key system. For added convenience, the cylinder can be easily rekeyed by removing the setscrew on the side of the cylinder housing.

ASSA cabinet locks are available in horizontal and vertical designs, as well as a deadbolt design. All are made of solid brass with several available finishes.

A History of Security:

ASSA was established in 1881 by the blacksmith August Stenman. The company's first cylinder lock was designed in 1939, and its first 5-pin master key system was developed just seven years later. Beginning in 1959, ASSA introduced its first registered, key-control systems.

With a recent growth in security concerns across the globe, key-controlled high-security locking systems like ASSA's are more important than ever. In fact, most buildings and facilities in the United States are at high risk of a security breach due to outdated master key systems. Well-known methods of defeating traditional master key systems are available from a range of resources, including local libraries and the Internet.

With ASSA's innovative dual locking mechanisms, geographically exclusive keyways, and strictly protected key system, users are realizing that upgrading their facility's security level isn't as obtrusive as many feel it might be. TNL

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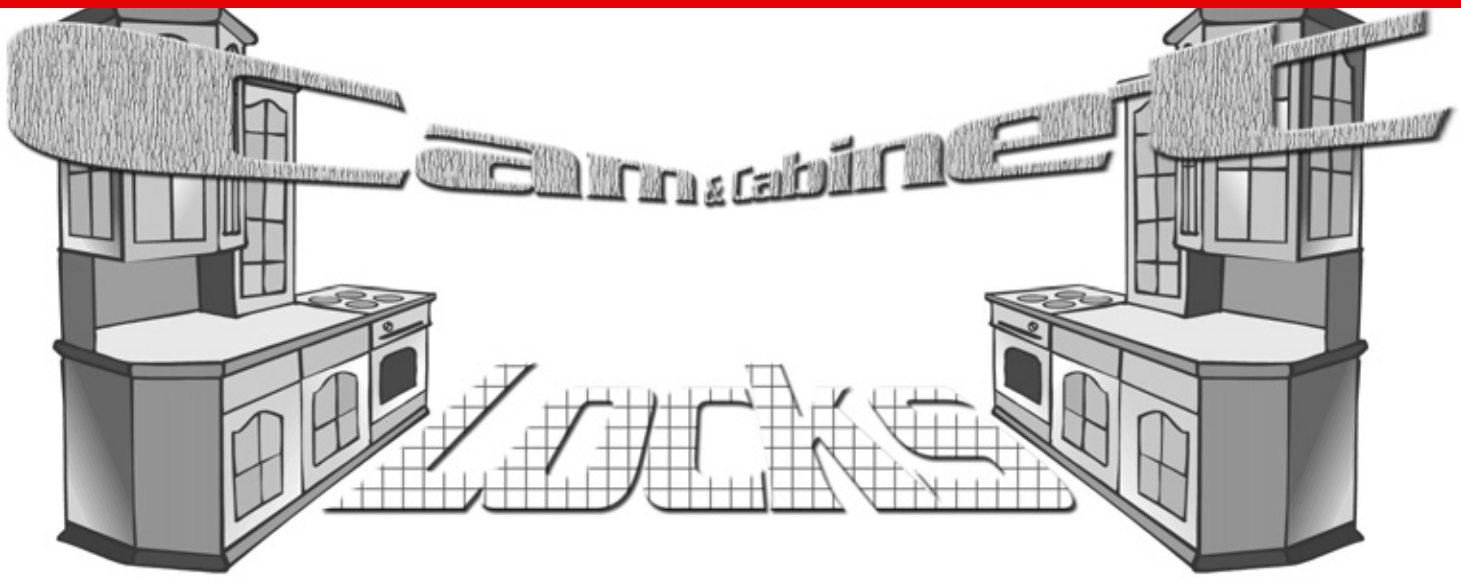
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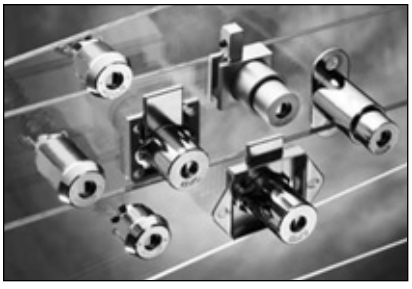
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Abloy Protec

ABLOY high security cam locks and cabinet locks represent high security and high quality with multiple choices in both models available as well as functions. All products are available on the new-patented UL437 listed key system ABLOY PROTEC. With patented key protection, the highest level of pick resistance and the convenience of ONE KEY FITS ALL keying.



Cam lock models include 5/8", 7/8" or 1-1/8" models with or without key retaining features, choices of hardened steel or brass housings. Cabinet lock models offer flush or surface mount, latches or deadbolts as well as jimmy resistant models, with or without key retaining feature. Also in range are Push locks for sliding glass or wood doors. Virtually all products can be keyed to other ABLOY PROTEC products such as deadbolts, cylinders and padlocks.

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American Lock's Series 8000 Tubular Cam Locks

All Series 8000 models are seven-pin tubular cylinders that are keyable to Chicago, Ace, Ace II, Fort, Gem and other Tubular key locks. The hardened steel spindle head and the steel security pin resists drilling. The tubular cam and inner cylinder locks meet NAMA standards. All models are rekeyable and offer outstanding security. More than 50,000 key changes are available (keyed alike or keyed different).

The Tubular Cam Lock Models 8060, 8078, 8118, and 8148 come in lengths of 11/16", 15/16", 1-1/8" and 1-1/2" (respectively) as measured from behind the front flange to the cam. The chrome plated threaded body has a 24-thread with two mounting flats.



A nut on the end of the spindle allows changing of the removable zinc plated steel flat or offset cams. There are three lengths of flat cams and four styles of off set cams. The flat cams have slots at each end that are 90 degrees to each other for different mounting positions. Beside the standard single twelve o'clock key pull position, the twelve and three o'clock position or twelve and six o'clock key pull positions are available. This allows versatility for design applications.

All weather caps protect the cam locks from dirt and water. The cover snap opens and shuts easily. The model 8300 Inner Cylinder Lock is made for vending machines that use the pop out door handle locking mechanism. It has a hardened steel inner shell that resists drilling.

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CCL Security Products

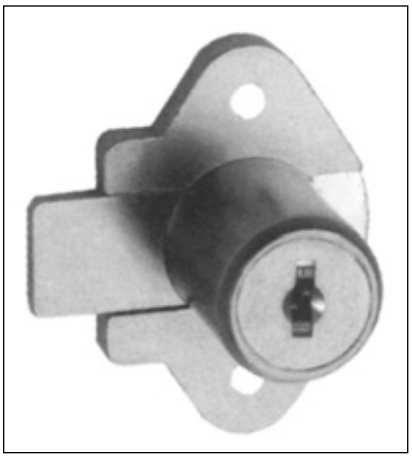
CCL Security Products, formerly known as Corbin Cabinet Lock, has been a longtime supplier of Cabinet Locks and Cam Locks to the locksmith industry. Celebrating its 120th Anniversary in 2002, CCL recently moved its manufacturing facility and sales office to Wheeling, Illinois, joining its sister company Illinois Lock at the Wheeling location. The combined companies are a division of The Eastern Company of Naugatuck, CT.

CCL Security Products produces Cabinet Locks and Cam Locks using both Pin Tumbler and Disc Tumbler keying systems. Regardless of the

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system, both systems can be master keyed to new or existing systems produced by CCL over the years.

CCL also introduced a full line of Tubular Key Cam Locks at the ALOA Show in Chicago in 2002. The new products have been well received by both the Locksmith and OEM market place and are featured in the new CCL catalog.



Over the years CCL pioneered many of the design specifications still used by cabinet and furniture manufacturers today. Locksmiths can confidently order CCL replacement Cabinet and Cam Locks for their commercial an institutional customers knowing they can count on the fact that today's dimensions, were yesterday's dimensions. CCL Security Products are distributed by Security Hardware Distributor Association (SHDA) members on an international basis.

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CompX Security Products

The name may be new to you but the brands are 252 years old in the Security Industry. That's right, CompX Security Products sounds new but it is the manufacturing umbrella for the former National Cabinet Lock, Fort Lock, Timberline Lock and Chicago Lock.

Today CompX Security Products has the premier distribution program in the security industry. The STOCK LOCKS program includes product from all four of the CompX brands and offers over 1,500 stocking products on the shelf at its two shipping locations, Mauldin, SC and Rancho Cucamonga, CA.

National Cabinet Lock, now CompX National, was founded in Rockford, Illinois in 1903 and will be celebrating its 100th Anniversary this year. National Lock moved its cabinet lock manufacturing facility to Mauldin, South Carolina in 1982. National has always been known for its full product line of security locks, ranging from disc tumbler locks to pin tumbler locks.

In 1998 CompX acquired Fort Lock, which is still located and manufactures lock products in River Grove, Illinois. Fort Lock, now CompX Fort, was founded in 1955. Fort added the Multi-Function cabinet locks with stainless steel caps to the STOCK LOCKS program.

In 1999 CompX acquired Timberline Lock, which is still located and manufactures locks in Lake Bluff, Illinois. Timberline, now CompX Timberline, was founded in 1982. Timberline added the small diameter core removable replacement wood furniture locks and mechanisms to the STOCK LOCKS program.

In 2000 another old industry Standard was added to the CompX family, Chicago Lock. Chicago Lock, now CompX Chicago, was founded in 1920. All production of Chicago brand products is manufactured in Mauldin, South Carolina. With the addition of

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Chicago to the STOCK LOCKS program came the ACE II tubular lock products.

As you can see, the name is new, CompX Security Products, but you have been using and trusting the CompX for more years than you may care to remember.

CompX Security Products is in the process of developing a new combined CompX catalog, which will be completed in 2003. Call your local Distributors for more information and a current catalog.

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HF Sécurité's Cam Locks to Guarantee Industrial Security

French lock specialist HF Sécurité has developed a range of cam locks suitable for a wide variety of industrial security applications. The locks are made from nickel-plated brass and feature steel or brass cams. Available in diameters of either 3/4" or 7/8", they are designed to secure cash dispensers, cash registers, vending machines, public telephones and electrical enclosures. Models that incorporate electrical contacts can also be used to safeguard alarms, elevators and forklift trucks.



To prevent the fraudulent use of a lost or stolen key, all of HF Sécurité's cam locks can have their combinations changed without the locks themselves needing to be removed or dismantled. As well as negating the risk of theft, this avoids replacing the locks completely, thereby saving considerable time and money. The OS5 is available separately and comes with five keys, allowing the user to assign on of five different combinations to their locks.

An advanced level of security is achieved when the cam locks are used in conjunction with the patented AXIRA key. The AXIRA comes with an identification code and security card; the latter must be presented before a duplicate key can be made. The duplicate is then cut from a secret combination contained in the identification code, rather than simply being copied from the original.

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Fax: *+33 (0) 4 50 98 87 42*
Web: *www.hfsecurite.com*
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Olympus Lock's Versatile Pin Tumbler Cam Lock

Available in four lengths, this cam lock comes equipped with



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everything you need for the most common locking applications. Their cam locks have a patented cam shifting mechanism that allows one straight and one bent cam lock to lock in all positions including locking down. (Some similar cam locks require eight different cams to provide the same functions!) Both the straight and bent cam come standard with their cam locks, and the offset can be used for either inbent or outbent applications. Additional cam shifters can be ordered for key-retaining function.

They also included their stabilizer plate with each lock. This plate keeps the lock from twisting in the cabinet and is much more secure than pronged wood washers, especially in particleboard applications. By placing a screw in the center hole, you trap the fixing nut so the cam lock is guaranteed not to loosen over time, a common problem with many cam locks.

Their patented retainer staple makes plug removal, rekeying and assembly a breeze. No more prying off top slides to rekey.

Their cam locks are available in either a National D4291 or CCL R1 pin tumbler keyway. If you're looking for a more versatile, easy to install, easy to key, more secure cam lock, this is the lock for you! Call Olympus Lock for more information.

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INTERCHANGEABLE CORE Service Tools



by Sal Dulcamaro, CML

LAB Small Format IC Tools

LAB has a reputation for making a variety of quality locksmith products. They are best known for precision tumblers and tumbler service kits, but they also make an array of specialty locksmith tools and other locksmith servicing parts. There are a number of worthwhile IC related products that LAB makes, and one of them has been very recently introduced. *Photograph 1*, shows the silver tone outer case of the new (small format) IC pin kit for institutional and commercial use. Opened up in *photograph 2*, one can see that it follows the general design of the much earlier introduced "Emerald Wedge" universal pin kit, with its tilted angle view of the tumbler compartments. The inside surface of the opened lid displays the specific layout of the many pin compartments. The compartments are described by category (top pin, bottom pin, springs, caps), pin size and measured pin length. For this kit, the bottom pins are the nickel silver variety and the top pins are made of brass. There are tumbler springs, and chamber caps are identified as either "stamped" or "machined" on the kit's lid.



1. The silver tone outer case of the new IC pin kit for institutional and commercial use.

A slightly closer view of just the various compartments in the tray can be seen in *photograph 3*. This is not a universal pin kit, but a brand/type specific pin kit. Small format IC lock cylinders use a .108 inch diameter pin tumbler. This kit will not work with more standard lock cylinders using conventional .115 inch diameter pin tumblers. The bottom pin sizes range from the shortest "0A" pin to the longest "9A", with lengths in .0125 inch increments. The top pin sizes range from "2B" to "19B", with these pins capable of being Master, Control (Build-Up), or actual "Top" pins, depending on the size. They are also in the same .0125 inch increment. Empty compartments remain for storage of tools or other small format IC related parts.

Like other LAB pin or service kits, the individual size pins or other parts can be ordered in replacement packets when specific tray compartments run low. LAB makes small format IC pin kits that use slightly different type (physical makeup or profile) pins in them, so you should know which pins your kit uses before reordering. *Photograph 4*, shows one version of the wooden case IC pin kits. There are two versions with nickel silver pins and a color-coded brass version pin kit.



2. The general design of the much earlier introduced "Emerald Wedge" universal pin kit.

LAB also makes a mini DUR-X IC pin kit with a case made of lightweight

Continued on page 48

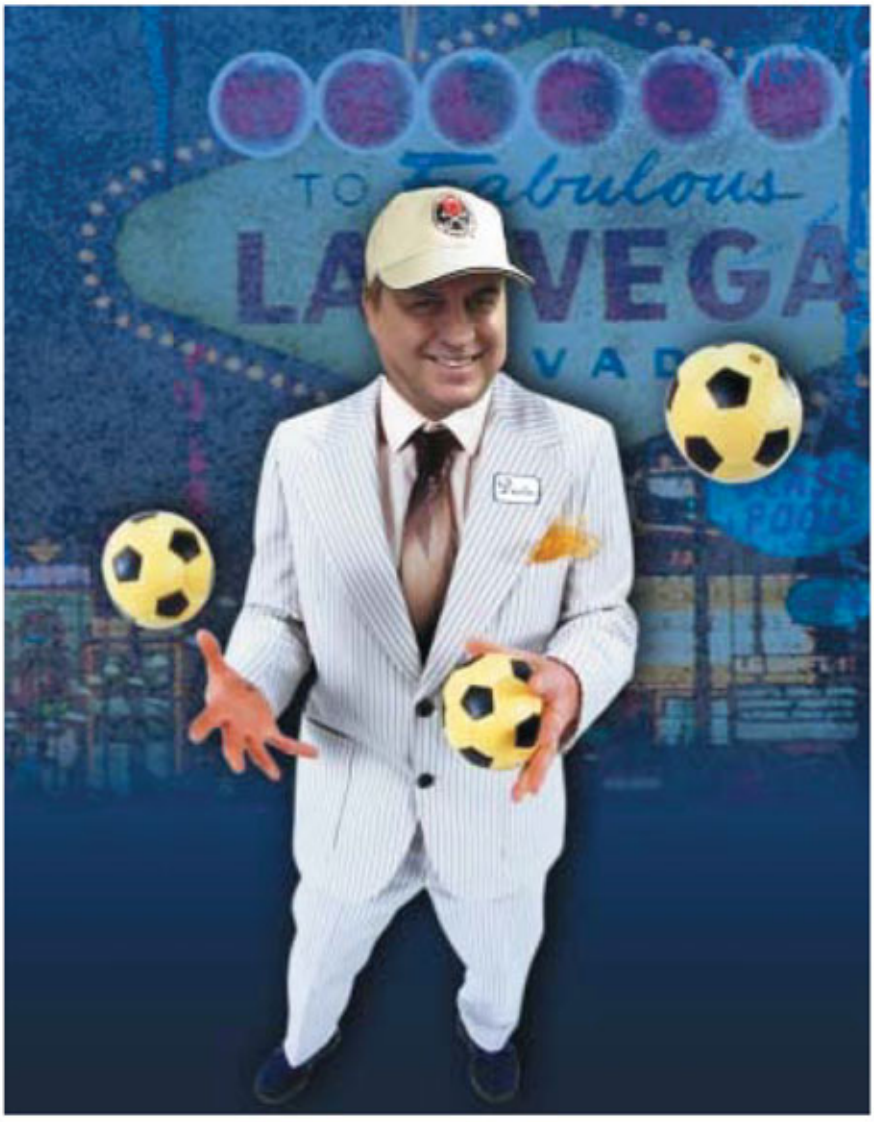


3. The various compartments in the tray.



4. The wooden case IC pin kits.

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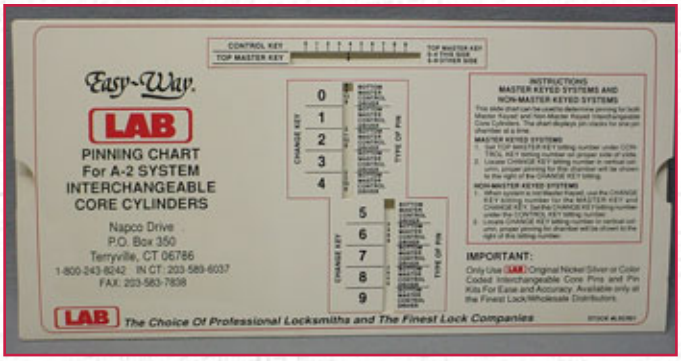
Continued from page 46



5. A mini DUR-X IC pin kit.

and super tough polyethylene. *(See photograph 5.)* The mini kit lacks the number 17, 18 and 19 top pins, but includes all other top pins and all of the bottom pins. If you think you will be using those longer top pins, make sure that you bring them along separately from your mini DUR-X kit. The mini kit is only available with color-coded brass pins in the .108 inch diameter. LAB also makes a color-coded brass small format IC pin kit that uses a full size metal case, but doesn't have the wedge shape.

While most of LAB's IC pin kits have A-2 type (increment) pins, they also make some pin kits for A-3 or A-4 small format IC systems. Since A-3 and A-4 systems are much less common than the standard A-2, your individual locksmith supply company or supplier may not necessarily keep them in stock. LAB makes replacement pin packets in all sizes and formats of pins (and springs).



6. The slide chart.

The LAB Easy-Way Slide Chart

Beside the interchangeable core pin kits, LAB also makes a useful tool for proper pinning of an I-Core. The slide chart in *photograph 6*, allows you to quickly compute the pin stacks when coding A-2 system I-Cores.

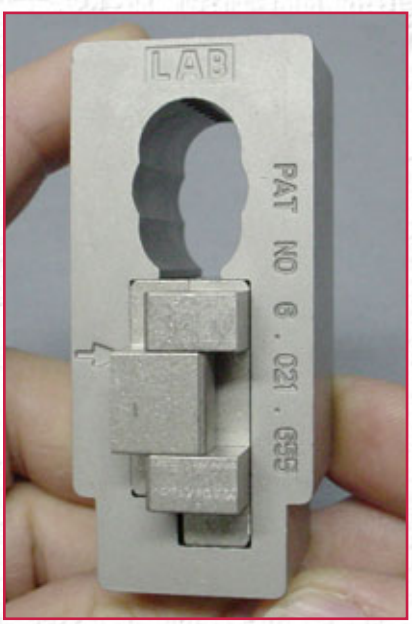
To determine the pin stack for each pin chamber, you will need to know the key bitting patterns for the control, top master key (TMK) and an individual change key. For chambers or whole I-Cores that are not master pinned, you will need just the control key and operating key bitting patterns. There is a slot at the top of the chart where you line up the TMK cut value to the control key cut value. Once that is lined up, you can find a specific change key cut value and the correct pin stack right next to it. The TMK bitting range is 0 to 4 on one side and 5 to 9 on the other.

The LAB Annex

Among the various specialty locksmith tools that they manufacture, there is the LAB Annex shown in *photograph 7*. The Annex might be considered a small format interchangeable core (SFIC) service center. This one tool (with its included accessories) allows you to either cap your pin chambers, or to safely empty your pin chambers while maintaining relative tumbler position when decoding a small format I-Core. The part that can contain captured tumblers is called the "Code Book" and it is being removed from the Annex body in *photograph 8*. The backside view in *photograph 9*, shows the spring loaded poppet ball in the bottom of the track that keeps the Code Book from just slipping out of the Annex body. It also helps to keep I-Core chambers aligned with the chambers of the Code Book when ejecting tumblers for decode purposes.

The Code Book has been fully removed from the Annex body in *photograph 10*. The Code Book need not be within the body when capping pin chambers, but obviously needs to be there when removing tumblers for decode. Stamped arrows are visible in both components to indicate how they are reassembled for decoding purposes.

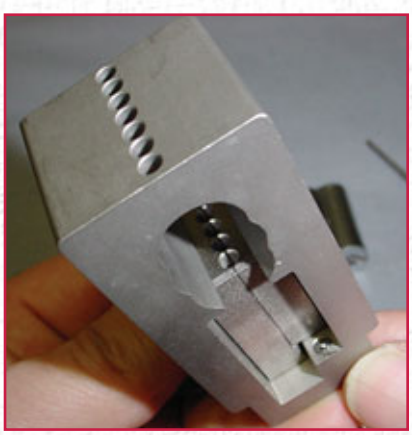
Photograph 11, shows a top view of the LAB Annex body and an I-Core contained within it. The Annex will handle up to 7-pin small format I-Cores. The capping tool is in my right hand, next to the Annex. The capping tool is in position to cap a pin chamber in *photograph 12*. A soft



7. The LAB Annex.



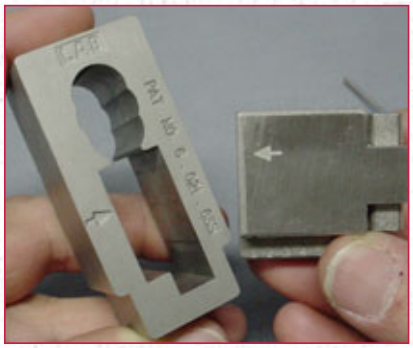
8. The Code Book.



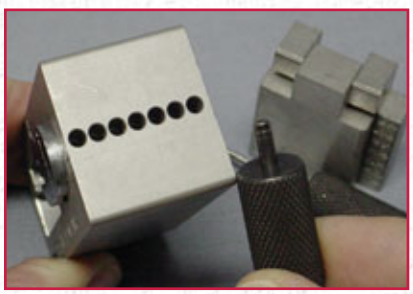
9. The spring-loaded poppet ball.

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faced mallet or hammer should be used when tapping the capping tool downward to cap a chamber. Never use a metal hammer to cap chambers. That will tend to wear on the Annex over time.



10. The Code Book removed.



11. The LAB Annex and an I-Core within it.

Using the Annex to Unload an I-Core

If you are going to unload the pin chambers of an I-Core, you will want to make sure that the Code Book is reloaded into the Annex body. In this instance, the already loaded I-Core would be positioned upside down as in *photograph 13*. The ejector pin (referred to by LAB as the "Evictor Tool") is inserted into each chamber from the topside of the Annex. Make sure the upside down I-Core is fully inserted into the Annex (with I-Core chambers aligned with the Code Book's chambers) before unloading any of the pin chambers. Gently tap the Evictor Tool into each chamber until all the chambers have been unloaded.



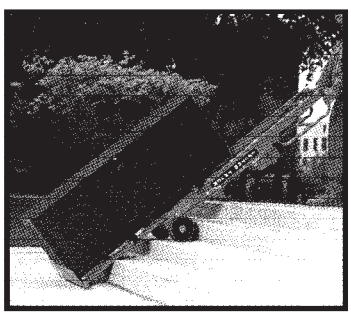
12. The capping tool.

Remove the unloaded I-Core before attempting to slide out the Code Book from the Annex body. Hold the Code Book tightly shut to keep the tumblers securely inside



13. The loaded I-Core positioned upside down.

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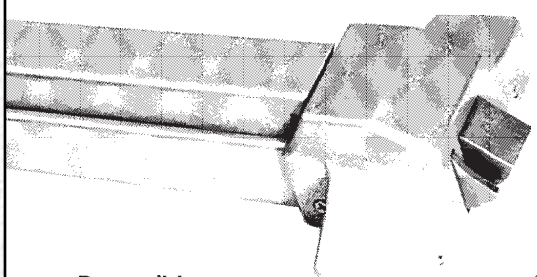
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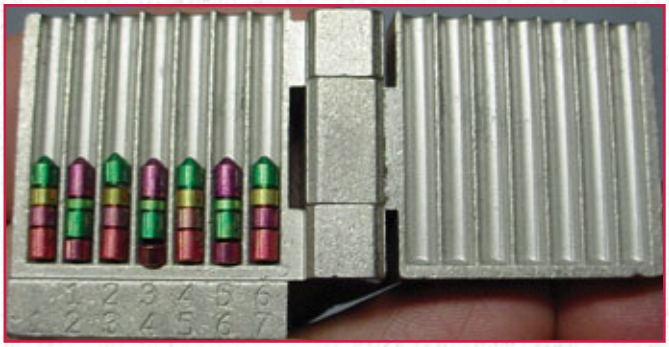


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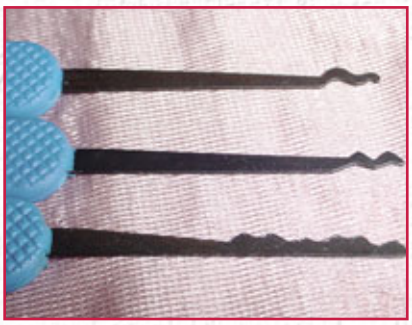
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14. The Code Book reveals the unloaded pin stacks.



15. A line of manual lock picks.



16. Three different rake style patterns.



17. Single point contact picks.



18. The complete set and instructions.

until it can be laid out on a steady flat surface. When opened in *photograph 14*, the Code Book reveals all the unloaded pin stacks from each I-Core pin chamber in their proper sequences. Normally the caps and springs would be at the top of each stack, but they have been removed. The pin stacks can be measured and converted to code number sizes to identify the pinning, when I-Core decoding is required.

The LAB Annex is a convenient all-in-one small format IC servicing tool. It is portable and very easy to use.

For more information contact: LAB Security, 700 Emmett St., Bristol, CT 06010. Phone: 800-243-8242 or 860-589-6037; Fax: 860-583-7838; E Mail: labpins@snet.net; Web: www.lab-lockpins.com. Circle 260 on Rapid Reply.

Peterson International IC Tools

Peterson Manufacturing first entered the locksmith tool market with the Peterson Pro tubular lock picks. That tool was designed to pick a large variety of tubular lock configurations with an assortment of attachments. You could pick both 7 (offset or not) and 8 pin locks and a variety of nose diameters. Later, the company saw a line of manual lock picks and sets of picks introduced, with some examples in photograph 15. Picks are available individually, in sets without leather cases, in sets with leather cases, and just the cases alone. Like most brands of picks, they come in various configurations. *Photograph 16*, shows the three different rake style patterns that are available. Four styles of single point contact picks are shown in *photograph 17*.

Now for picking interchangeable cores, you can use whatever picking tools you use to pick other lock cylinders. Your skill level (and a bit of luck) will determine how quickly you might pick any particular I-Core. The difference between I-Cores and more conventional pin tumbler lock cylinders is that an I-Core will have two separate and distinct shear lines. When you attempt to pick an I-Core using the more conventional lock picking tools, you cannot usually predict whether you will pick the operating shear line or the control shear line.

Peterson Manufacturing has recently introduced a pair of tension/turning tools designed to specifically pick to the control shear line. While you can order any of the picking tools individually, Peterson makes a set of three picking tools that are for the specific purpose of picking I-Cores. The complete set and instructions are shown in *photograph 18*. Included in the set are two separate turning tools and a "Slender Gem" single point contact style pick.

A close up view of an I-Core (bottom shown) and one of the two turning tools are shown in *photograph 19*. There is a series of small protrusions on the bottom surface of the turning tool, which are intended to engage the ejector holes on the bottom of an I-Core keyway. This tool is similar in design to a tool previously sold by the late Gerry Finch. *Photograph 20*, shows a bottom view of the same I-Core with the other turning tool inserted in the keyway. If you look closely, you can barely see some of the protrusions on the tool within the ejector pin holes. The small protrusions are designed to be just long enough to extend through the set of holes in the control sleeve. When engaged properly, turning pressure is applied directly to the control shear line. If picking is successful, the sleeve should rotate and the I-Core should be picked to the control shear line.

A close up view of the Slender Gem can be seen in *photograph 21*. It is a variation of the "Peterson Gem" pick shown at the top of *photograph 3*. The instruction sheet also recommends the use of the "Peterson Reach" pick, which can be seen at the bottom of *photograph 3*. Like the Slender Gem, the Peterson Reach is designed for use in tight and restrictive keyways.

Tool Limitations

Like any other picking tools, success will largely depend on both practice and the skill level of the

Continued on page 52

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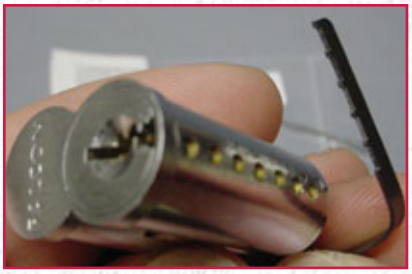
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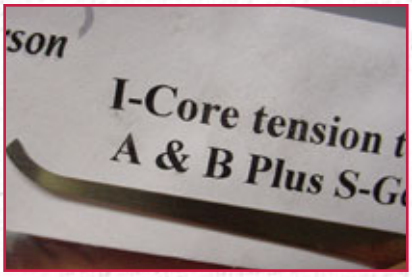
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Continued from page 50



19. One of the two turning tools.



21. The Slender Gem.



20. The other turning tool inserted in the keyway.

technician. Two different tools are included to account for a variety of keyway broaching patterns. The combination of both tools should work for most of the different keyways you confront. Because the tool engages the ejector holes in the control sleeve (at the bottom of the keyway), it cannot be used with Keymark keyways that are offset and not in line with the ejector pin holes.

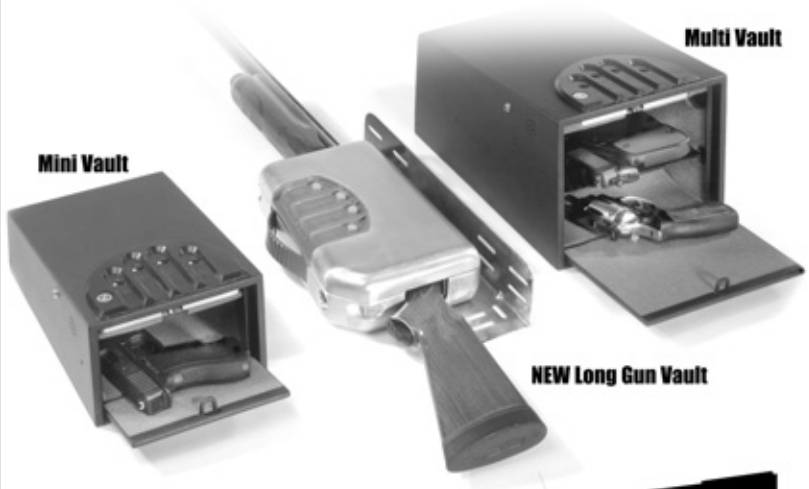
Arrow has recently introduced a line of modular component I-Cores that do not use a control sleeve around the plug. The turning tools will not work with that I-Core design. Conventional picking tools can be used with this version I-Core, but you will generally rely on luck (the same way as other I-Cores with conventional turning tools) as to which shear line is picked. Short of drilling a hole and directly engaging the control lug, it will be awkward to specifically attempt to pick the control shear line on those types of Arrow I-Cores.

One final note: Most I-Cores will have six or seven chambers. A six or seven pin lock will typically be somewhat difficult to pick. The fact that most I-Cores have a good chance of being master keyed increase your chances of picking, but only at the operating shear line. The control shear line is different. Although possible, master keying is rarely done at the control shear line, which increases pick resistance. While not every attempt will be successful, it never hurts to try and pick a lock before pulling out the old drill. Even if your picking skills are above average, you will probably find yourself drilling to remove an I-Core every so often.

For more information contact: Peterson International; Phone: 585-264-1199; Fax: 585-586-0425. Web: www.peterson-international.com; E-mail: kenpersson@aol.com. Circle 261 on Rapid Reply. TNL

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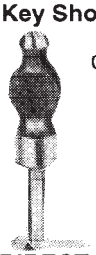
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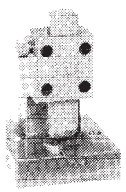


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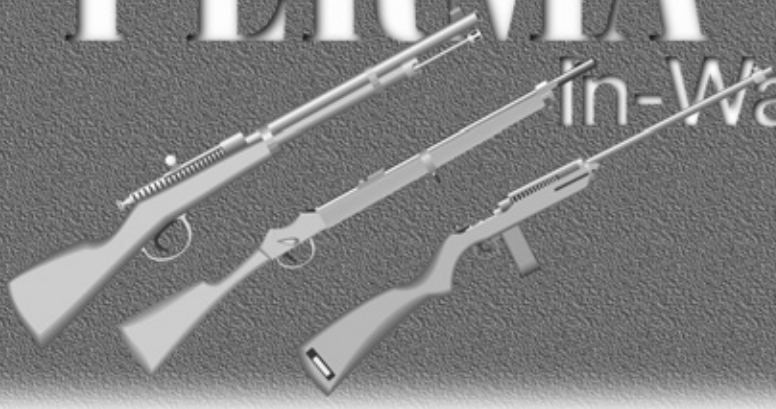
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PERMA-VAULT

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Long known as a manufacturer of drop boxes and depository safes, Perma-Vault is now offering an in-wall rifle safe. The unit has interior dimensions of 56" high by 14-3/8" wide by 4" deep. It provides ample storage space for three or four rifles.

Constructed with heavy gauge steel and a three-point locking mechanism, no assembly of the safe is required. The unit is shipped complete. Lock choices are either a Medeco key lock or an electronic push-button lock. The unit is designed to fit between standard 2 x 4 wall studs 16" on center.

Before installing this unit, a few things must be considered and determined first. One is where is the unit to be installed? Make sure it will fit in the desired location, meaning is there enough head room and will the door fully swing open without any obstructions.

What's between the wall at the desired location? Is it insulated? Are there any electrical outlets, or electrical runs in the path. This is obviously critically important to know before you start cutting the wall-board or sheetrock. Check not only the side in which the safe is to be installed, but also the back side of the wall for outlets, switches, light fixtures, etc. If there is, choose another location.

Ideally, the unit should be installed on an interior wall (which is often not insulated, such as in a closet) and where there is the least chance of any electrical runs present. This can often be a difficult thing to assure without the ability to see in the wall first, so plan and examine thoroughly.



1. An interior closet was chosen.

For this installation, an interior closet was chosen. *(See photograph 1.)* The back side of the wall was a bathroom with an electrical outlet present. After measuring the location of the safe and the location of the electrical outlet, we determined that we should be clear of the outlet, with the hope that there is no wire runs across the studs where the safe was to be. We surmised that there shouldn't be, but you can never be sure how a house is wired.

After a few moments of apprehension and careful measuring, a hole was punched in the wall-board and the cutting began. *(See photograph 2.)* The cutting is fairly easy. All you have to do is cut the wall-board by following both studs the proper height. Then cut the top and bottom segments across. Once this is done, the wall-board will fall out in your hands. It was a huge relief to see that there was nothing behind the wall-board. *(See photograph 3.)*

Now it's just a matter of fitting the gun safe in the hole. If all goes right the unit will drop right in, however, that's not what happened. If the 2 x 4's are a bit off center or not nailed straight, you must compensate,

Continued on page 56

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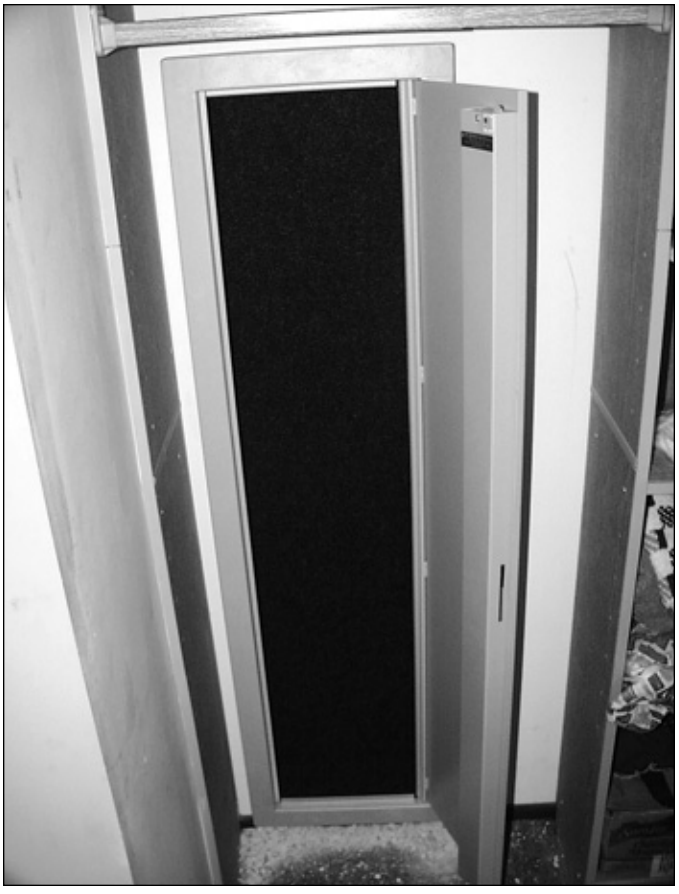
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Continued from page 54



2. A hole was punched and the cutting began.



4. The gun safe was installed.



3. There was nothing behind the wall-board.



5. This unit was fitted with an electronic combination lock.

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6. One of the locking bolts and a Made IN U.S.A. sticker.

which was the case here. To make the adjustment, we pounded one of the 2 x 4's over just a bit and that did the trick. The gun safe was now installed. *(See photograph 4.)*

This unit was fitted with an electronic combination lock with a factory setting of 1-2-3-4-5-6. Punch in the numbers and the door opened. *(See photograph 5.)* ***The lock is easily re-set following the given instructions.*** One of the locking bolts can be seen along with a Made IN U.S.A. sticker at the top of the unit. *(See photograph 6.)*

With the gun safe open, the unit is then screwed to the studs through the inside side walls and secured.

When the installation is complete, the face of the safe protrudes about 2" from the wall, leaving almost the entire closet space still accessible.

When space is limited, a wall safe is the way to go. There is almost always a place to install one and takes up a fraction of the space a standard gun safe would. Care must be taken when installing, however if there are no obstacles, it's a breeze.

For more information contact: Perma-Vault Safe Co., 3015 Philmont Ave., Huntingdon Valley, PA 19006. Phone: 800-662-3360 or 215-938-4300; Fax: 215-938-4310; E Mail: sales@perma-vault.com; Web: www.perma-vault.com TNL

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GMS

IC PRODUCTS

by Sal Dulcamaro, CML

I first heard about GMS in regard to its mortise and replacement knob cylinders. A number of locksmiths indicated that they were available in common commercial keyways, and were both of reasonable price and good quality. I learned much more recently that GMS makes a wide variety of IC hardware products, too.

GMS mortise housings are available in two styles shown in *photograph 1*. On the left is the tapered design and the straight housing is on the right. Both of the designs are available in 6 and 7 pin core lengths. They are of solid brass construction and are made in three different finishes: 3, 10B and 26D. When turned around, in *photograph 2*, the (easily) removable cams are apparent. Notice the screw pattern of the cams. You will not be able to use generic style cams with these cylinders. Cams can be quickly switched to match specific mortise lockset hardware.



1. GMS mortise housings.



2. Made of solid brass construction.



3. A 7-pin version.



4. The lettered keyway I-Cores.



5. The DBI series deadbolt lock.

Rim style IC housings are also available. *Photograph 3*, shows a 7-pin version, but they are also available as 6 pin. Like the mortise style housings, they are available in the following finishes: 3, 10B and 26D. The rim housings use breakaway tailpieces to adapt to doors of different thickness. Breakaway screws, a collar and mounting plate are also included. These housings also have solid brass construction.

GMS makes both 6 and 7-pin I-Cores in a variety of original Best brand lettered keyways. Those Best keyways included are: A, B, C, D, E, F, G, H, J, K, L, M and Q. *Photograph*



6. An MX series I-Core and key blanks.



7. Two MX series I-Cores.

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8. A sample of Yale Y1, Y2 and Schlage C keyway cylinder.



9. MX numbered series cylinder and key blank.

4, shows front and back views of three of the lettered keyway I-Cores. From left to right are C, E and L. These I-Cores should work well with GMS housings or other standard configuration Best-style housings. The 6-pin cores will go into both length housings while the 7-pin cores must use the longer 7-pin housings.

GMS makes a few different style deadbolt locks. *Photograph 5*, shows the DBI series deadbolt lock in pieces. The I-Core housing slightly resembles a rim type housing, except that this version does not have fixed drive pins. It uses a removable tailpiece. Another version of this deadbolt uses knob type cylinders (DBK series) and is not compatible with I-Core usage. GMS makes another design deadbolt lock that slightly resembles the old LORI deadbolt lock, which accepted mortise cylinders. The GMS version also uses mortise cylinders. It can be adapted to IC use by using a mortise style cylinder housing. All the deadbolt versions feel rather substantial and solid. The GMS deadbolt locks are available in three different functions: single cylinder, double cylinder and classroom. They are available in the following finishes: US3, US4, US10B, US26 and US26D.

• Restricted Keyways •

While GMS does not have patented key control, they do have a few proprietary or restricted keyways. They refer to these as their MX series. An example of an MX series I-Core and key blanks is shown in *photograph 6*. Notice that the keys have both shoulder and tip stops, and presumably they could be gauged for cutting from either surface. A back side view of two MX series I-Cores is shown in *photograph 7*. They are similarly constructed as the GMS Best keyway I-Cores. Rather than being riveted together, the GMS I-Cores are retained by a clip. Separately, they are also stamped with letters that identify the keyway. The one on the left is marked "A" and the I-Core on the right is marked "C". Do not confuse the lettered (MX) proprietary keyways with the lettered keyways originated by Best.

Be careful how you sell restricted keyway locks and keys to a customer. Make sure that you don't guarantee that key duplication can't be accomplished or that there are any legal grounds to prevent it. Duplication is more limited than the standard keyways, but not anywhere near a legally enforceable patented key. The cost is much less, so a combination of lower cost and some limited restriction in duplication is its selling point. If a customer needs true key control, you should try to steer them to a legitimate key control product line with current and enforceable patents.

Outside of the interchangeable core product line, GMS makes knob cylinders in a wide variety of common commercial keyways. A sample of Yale (Y1, Y2) and Schlage (C keyway) type cylinders are shown in *photograph 8*. GMS also makes MX series keys and cylinders in the knob style cylinder format. *Photograph 9*, shows an MX numbered series cylinder and key blank. The keyway is proprietary, but it uses Schlage compatible spacing and depth specifications and can be serviced using a Schlage pinning kit. GMS also makes mortise and rim cylinders in common commercial keyways plus a number of different rekeyable padlocks. GMS lock products are available through many different locksmith supply companies.

For more information contact: GMS Industries, Inc., P.O. Box 607-Unit D, Ferndale, WA 03248. Phone: 888-774-5625 or 604-448-1245; Fax: 604-448-1249; E Mail: info@gmslock.com; Web: www.gmslock.com. Circle 263 on Rapid Reply. TNL

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The latest addition to the Alarm Lock line is the Trilogy Prox Lock, called the PDL 3000. It combines the key features of established standalone Trilogy locks with proximity technology.

I installed a Trilogy Prox, single door entryset in part one of this article. *(See photograph 1.)* In this part, I will cover the different ways the lock can be programmed and the accessories that can make the job easy.

To start with, the software that is used with the PDL 3000 is called "DL-Windows" and is a Microsoft Windows based program. *(See photograph 2.)* DL Windows can be used on any computer that is running Windows 95 or later. It is used to program multiple users and schedules into any Alarm Lock DL series, stand alone, access control security lock.

The program is started just like any other windows program. *Photograph 3*, shows the first screen that comes up after starting DL Windows. The first thing you should do is choose a "Comm Port" for the software to use with the lock or accessories.

Click "options" and then "comm port" *(see photograph 4)* and the com port selection window will pop up. *(See photograph 5.)* Pick your poison and click "OK". If you are not sure which com port to choose, you can have the software test and choose a com port for you. *(See photograph 6.)*

While we are on the com port subject, take a look at the "AL-PC12" interface cable. *(See photograph 7.)* This cable is used to connect the computer to either the PDL 3000 lockset or one of three accessories. They are the "AL-DTM 1", the "AL-DTM 2" *(see photograph 8)* and the "AL-PRE" prox card reader. *(See photograph 9.)*

After the com port is selected, it is time to create a new account. Each account is like a building or a floor of a building. You can have multiple accounts. Each account is capable of managing multiple locks as well as 2000 users.

To create a new account, click "file" and then "new account". *(See photograph 10.)* You can use any name you want as an account name. In this case I used "Austin" as my account name. *(See photograph 11.)*

TRILOGY

— Part 2 —

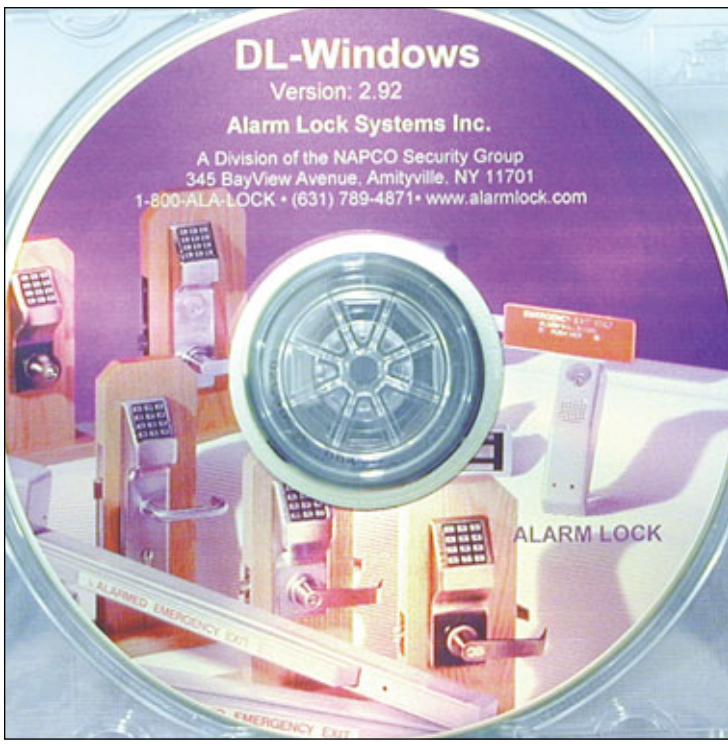
Programming The PDL 3000 from Alarm Lock



by
Richard Allen Dickey

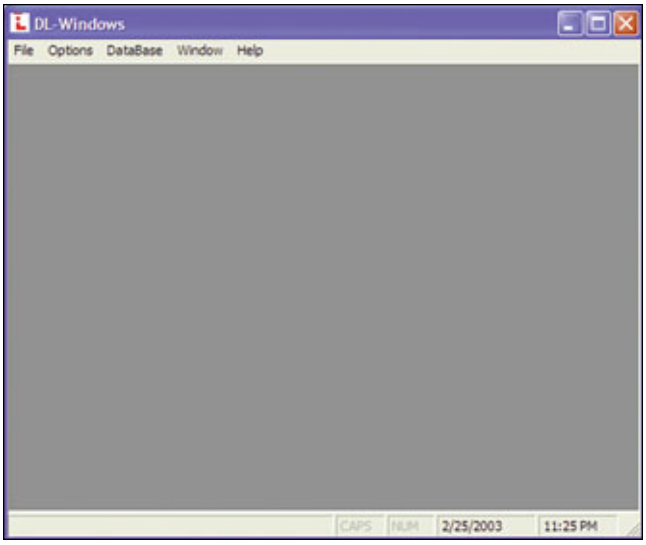


1. The PDL 3000 Keypad/Prox lock is a grade 1 entryset that is capable of acting as a stand-alone electronic entry system.

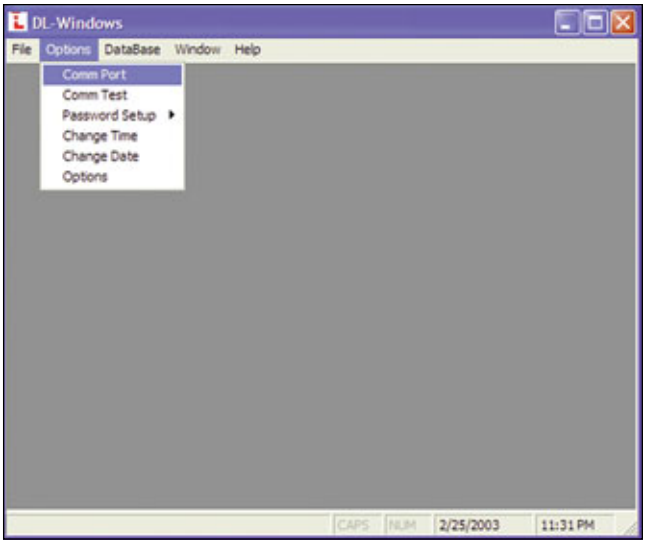


2. Although not required, the PDL 3000 can be programmed with a computer using the DL Windows software.

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3. The DL Windows software is started like any other windows based software.



4. Choosing a com port for the software to communicate with the lock is easy.

After choosing the account name, a "New Lock" window pops up and it is time to add a lock. Enter a name for the lock and choose the type of lock that is installed. *(See photograph 12.)* Click "OK" and DL Windows will set up the lock and open the lock window. *(See photograph 13.)*

In the lock window, you will find several things already set up for you. User ID's from 1 through 2000 are already numbered. Some of the user ID's are assigned user names. Examples are the "Master Code", "Manager", "Supervisor", "One Time User Code" etc... From this same window you are able to perform searches, enable or disable groups as well as several other functions.

One of the options available is the "Generate Random User Codes." *(See photograph 14.)* It is an easy way to create user codes for 2000 users in only a few seconds. *(See photograph 15.)* Even though the codes are there, they still are not usable until the "Enable" box is checked.

Some of the other windows that are available include "Schedule", "Time Zone" and "Event Log Viewer" as well as others. *(See photograph 16.)* These windows are easily accessed with a click of the mouse.

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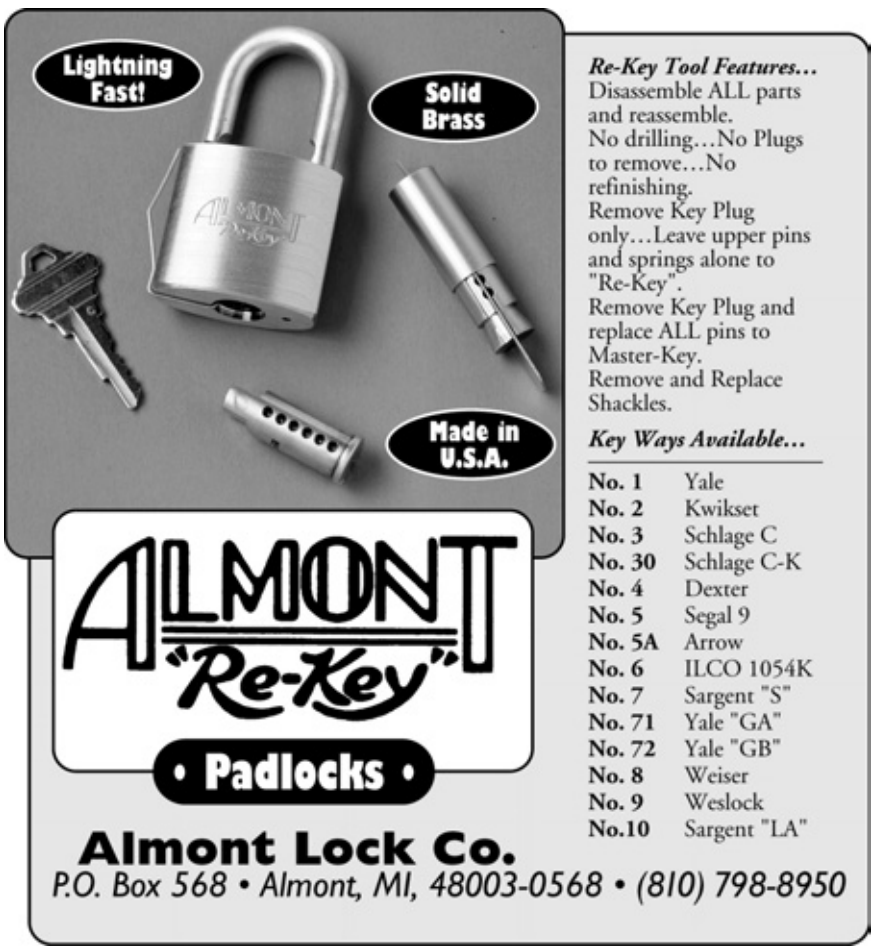
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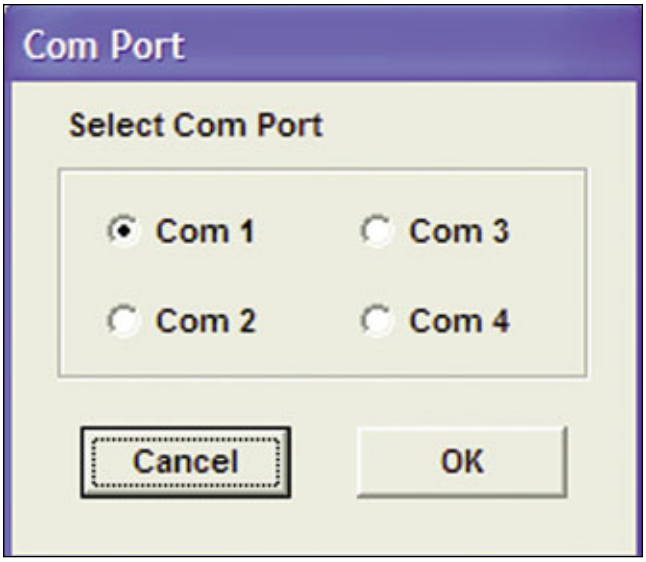
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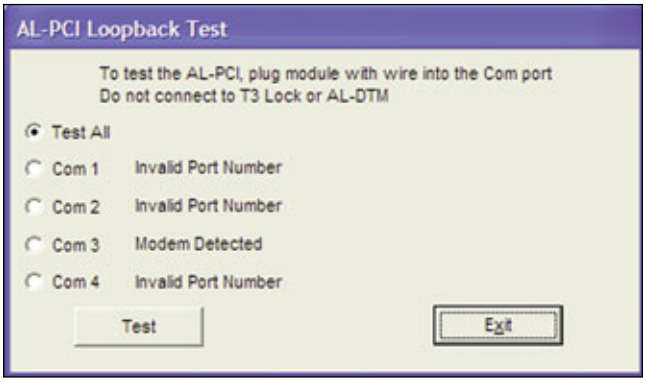
OID-4/02



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5. ***Choose the one you want and click "OK".***



6. ***If not sure which com port you should choose, let the software decide for you.***



7. ***A serial interface cable is used to connect the computer to either the lock or the Data Transfer Module.***

One very useful feature of this program is the help feature. It is like a complete manual right in the computer. *(See photograph 17.)* You are able to search for specific information or select specific topics.

As mentioned before, the lock can be programmed through the use of the keypad, computer or a data transfer



8. ***Here is the Data Transfer Module.***



9. ***A Prox Card Enroller makes it easy to add Prox cards to the system.***

Continued on page 64

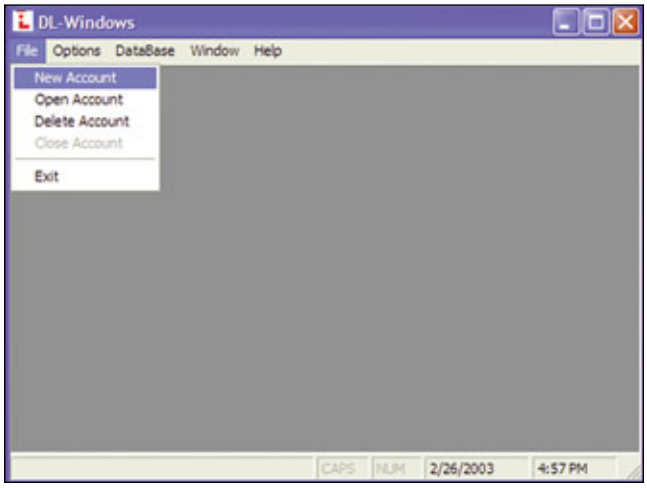
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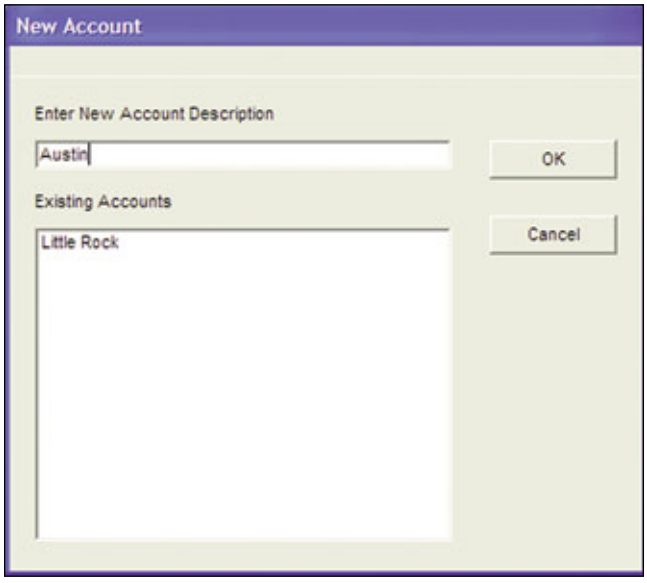
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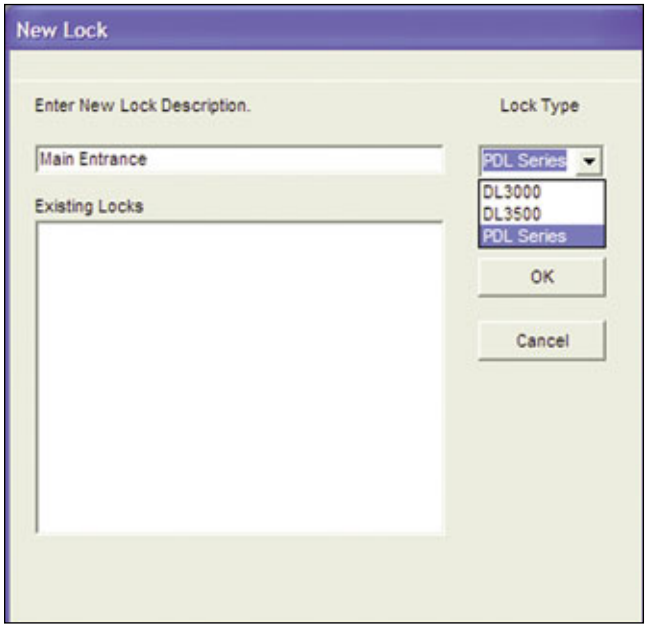
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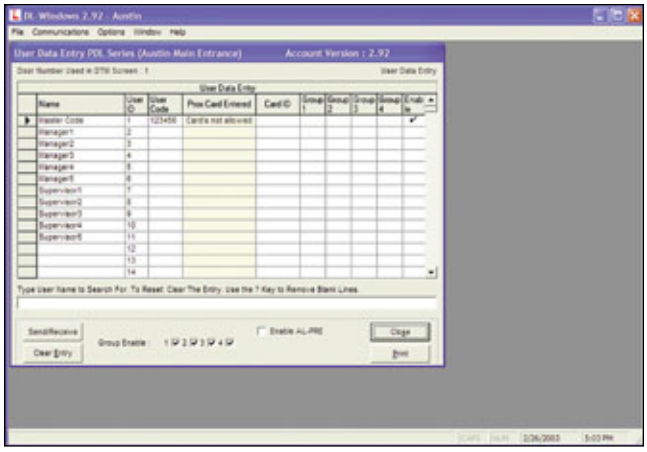
***10.** After the com port is selected, a new account should be created.*



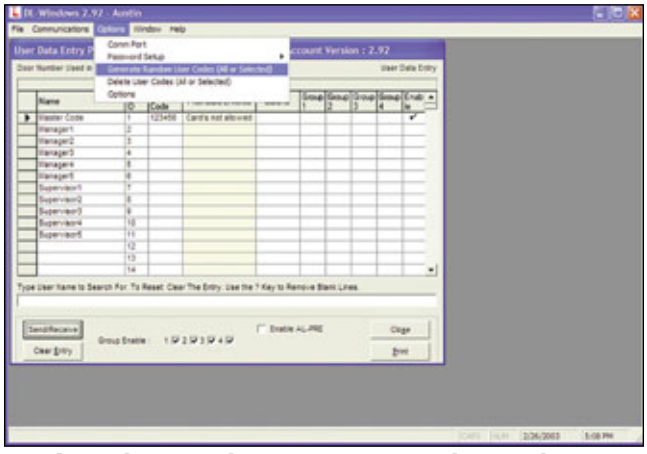
***11.** It is simple to name the new account.*



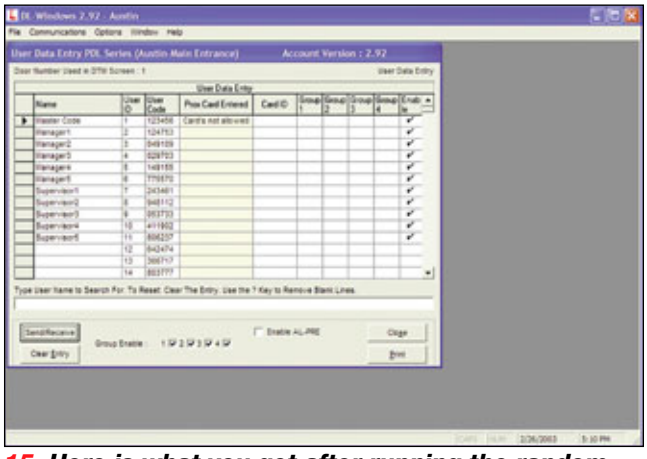
***12.** After an account is set up you will be able to add locks.*



***13.** After the lock name is entered, the user data entry screen is displayed.*



***14.** A random number generator can be used to automatically add user codes to the lock.*

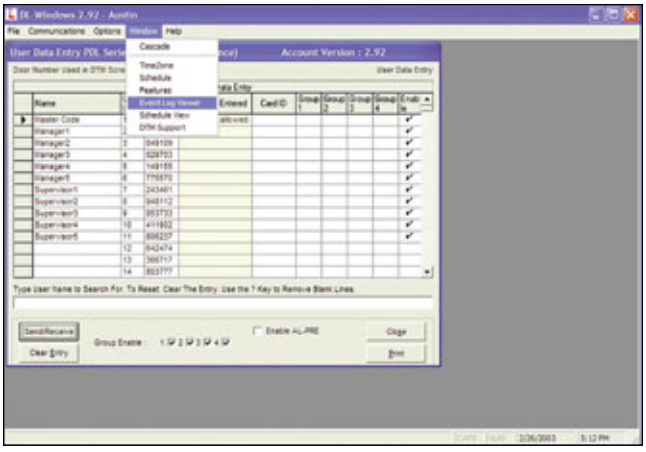


***15.** Here is what you get after running the random number generator.*

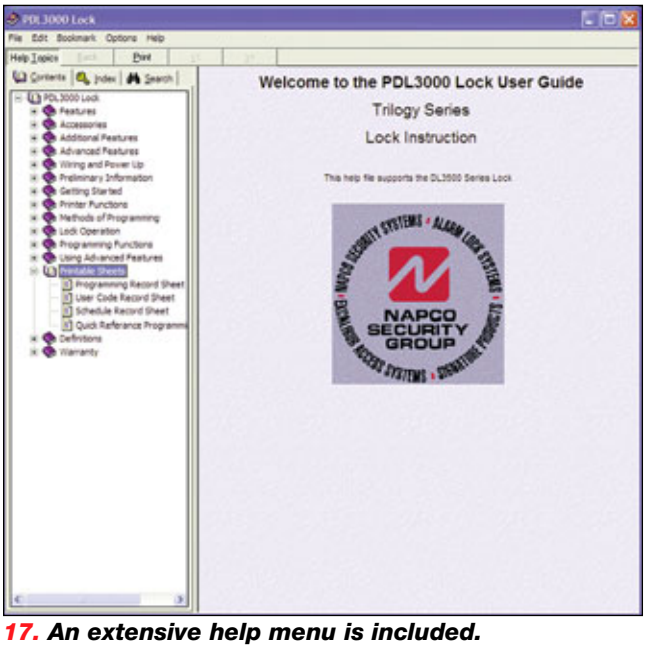
module. If a computer of data transfer module is used, a data transfer cable is plugged into the front of the lock. *(See photograph 18.)* A code is entered into the lock to start the data transfer. The connection is polarity conscious. There is a tab on one side of the connector. The tab has to be lined up with the black side of the connector receptacle.

Data can be sent to the lock as well as retrieved from the lock. If you are only interested in retrieving the audit trail, that can be done with a handheld infrared printer. The printer *(see photograph 19)* uses thermal paper and

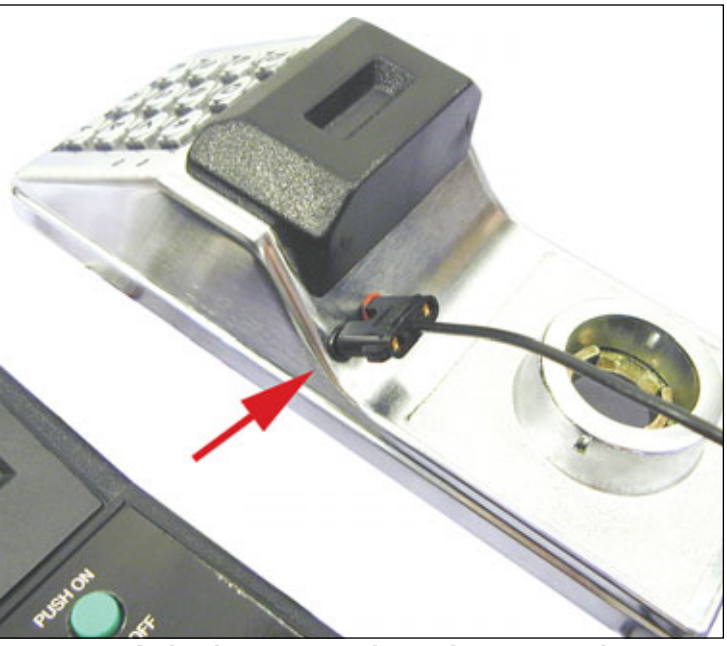
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16. ***Several other windows of information can be viewed.***



17. ***An extensive help menu is included.***



18. ***A simple connector is used to communicate between the lock and the computer/data transfer module.***

Continued on page 67

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Continued from page 65



***19.** An infrared printer can be used to retrieve audit trail information.*



***20.** The infrared sensor is located on the bottom front of the printer.*

has the infrared connection on the bottom front of the printer. *(See photograph 20.)*

The PDL 3000 is easy to install, easy to set up and has an easy to use software package. If you only intend to use one lockset, it can be easily programmed with just the keypad. If you have a lot of them, the software and hand held devices will make the job much easier. Have fun and have a nice day!

If you would like more information about any of the products offered by ALARM LOCK, give them a call at 1-800-ALA-LOCK (252-5625) of fax them a request at 613-789-3383. You can also visit their web site at www.alarmlock.com. Circle number 264 on Rapid Reply.

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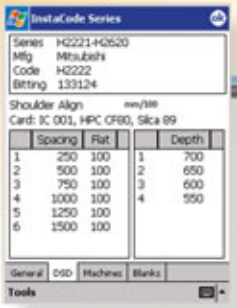
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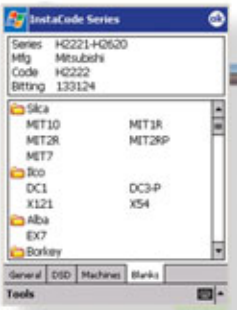
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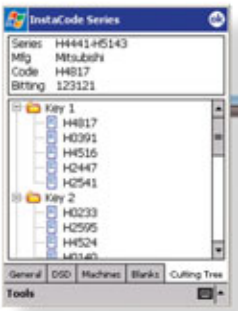
Choose **"Machines"** and get the card number, cutter information, jaw side, and alignment for your key cutting machine.



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An on screen **Cutting Tree** helps eliminate key blank waste.

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THE CASH STATION

by Mike Griffin

NKL Safe

A frontal attack on this NKL safe would have been very challenging due to the Vindicator electronic lock in conjunction with a LaGard Swing Bolt electronic lock that does not require a spindle hole connection, making the lock location more difficult to determine. ***(See photograph 1.)***



1. NKL safe with Vindicator lock.



2. Side punching the bolts.

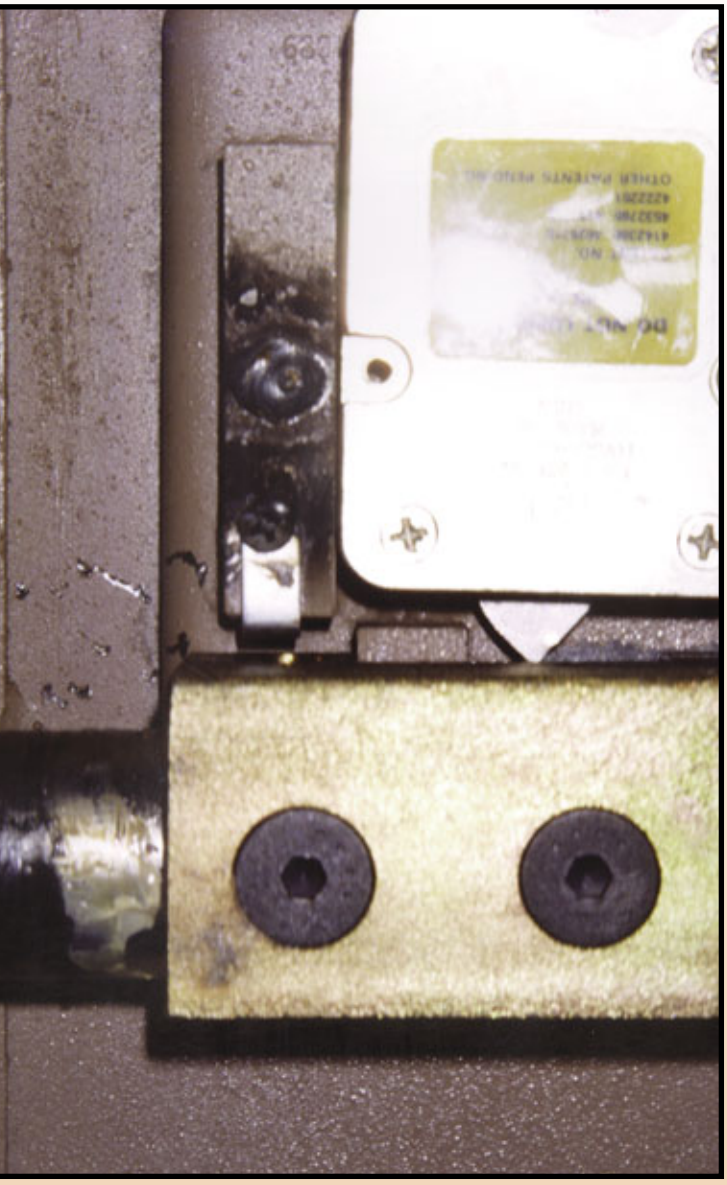
Luckily I had another one of these safes in the warehouse that was open. I decided to drill from the side for the center bolt and side punch. ***(See photograph 2.)***

I started with a 3/8" bit to drill through the outer steel body. Then switched to the Bosch Bulldog with a 3/8" mortar bit. Much to my surprise the mortar bit penetrated through to the bolt. There was no steel protecting the bolt from side drilling.

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Once the hold was drilled, I inserted a 3/8" punch. Three whacks with a hammer and the safe is open. Total opening time was 15 minutes.

Drill point: From the bottom of the safe (excluding the feet), my drill point was 23-3/8" up, and from front edge of the safe body- back 4-3/8".





3. Bolt work.

Photograph 3, *shows the simple bolt work. Notice that this company has disabled the external relock device.* ***Photograph 4,*** *is a close up of the disabled relock device and defeated LaGard Swing Bolt.*

This is one of the easiest safes I've ever opened. Mainly because the LaGard Swing Bolt lock does not resist side punching very well. TNL

4. LaGard lock and missing relock device.

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The S&G PULSETRONIC

by Dale W. Libby, CMS

Part 1

The Sargent & Greenleaf Pulsetronic safe lock represents a major leap forward in lock technology. It is designed to fit the footprint of a standard 6700 series mechanical lock, and it will occupy approximately the same space, as a standard lock will. One of the unique features of the lock is that it does not require a dial to operate or any wire connection between a keypad and the lock. The lock is controlled with a remote keypad controller that sends pulses of sound to the lock. The locks receiver reads the length of the transmitted pulses, and if the sequences are correct the lock opens.

Photograph 1 shows a small Adesco dual bolt composite cube safe equipped with an S&G 6700 series Group II combination lock and dial. There is a tri-spoke opening handle located to the left and below the dial that is mounted on the hinge side of the door. The lock is mounted Vertical Up (VU) on this small but mighty safe.

The keypad controller for the Pulsetronic lock is magnetized and will stick to the safe in any position. It can be permanently mounted on the safe or struck to the sides, top, back, or front of the safe when in or out of use. This controller can work up to 9 different locks and 1 of 4 different styles of the Pulsetronic lock.

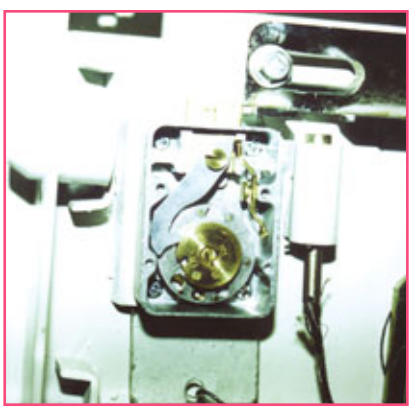
Photograph 2, is the dual bolts that lock the safe door. These are large 1-1/2" bolts and are formidable. *Photograph 3*, shows the mechanical lock mounted VU with the relock bolt to the right of the lock in this picture.



1. Adesco cube safe with tri-spoke opening handle. Lock is mounted VU.



2. Dual side bolts that hole the cube safe locked.



3. S&G lock mounted VU. Note the glass plate under the lock to protect against drilling attack.

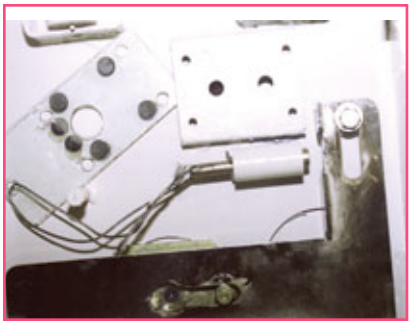
There is also a glass plate mounted under the mechanical lock to provide drilling protection of the lock. This plate does not provide punching protection of the spindle.

Let's talk briefly about the glass relock plate. *Photograph 4*, shows what happened when I took off the mechanical combination lock. The plate slid out from under the mounting bridge. You can see several rubber anti-vibration pads mounted to the glass plate. If you look closely you will see that the relock trigger has not been set off. The trigger pin was 'pinned' open at the factory with a cotter key.

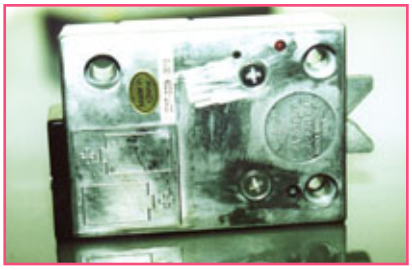
After receiving the safe and selling it, this pin must be removed to activate the glass plate relocker. This is to prevent the relocker from accidentally firing when the unit is being shipped from the factory or from the distributor. This is a good feature, but I wonder just how many of these pinned relockers are activated by the safe sellers? Most, I hope.

The plate is held in place by the mounting screws of the combination lock. There are four holes drilled through the plate to accept the standard mounting pattern. The screws supplied with the Pulsetronic lock are about 1/4" too short to secure the glass plate correctly on this particular safe unit. However, the supplied screws are long enough for most other mounting applications.

The Pulsetronic Electronic Combination Lock is shown in *photograph 5*. One characteristic about this lock that is important to know is



4. Glass plate dropped. Relocking pin has not fired because it was pinned at the factory for shipping.



5. The Pulsetronic left handed lock. There is a red diode in the upper right hand corner.



6. The reset code and serial number decal.

that it is handed, either right or left handed. You must order the lock for the particular application according to the placement of the opening bolt or handle cam. Most new electronic locks, even the swing bolt variety come multi-handed or non-handed and can be used in a variety of applications. Not so with the Pulsetronic.

I have found the easiest way to determine handing is first to determine which side of the combination lock bolt is active, or first to meet metal. On the Pulsetronic, there are two choices, either right or left handed. Essentially you have to determine which side meets the triangular flapper first. Using the existing combination lock you want to retrofit, (no matter how it is handed), mark the back of the bolt edge that first meets the cutout in the metal bolt bar, or first interacts with the handle cam. Once you have marked the bolt, hold the lock with the bolt down, in the Vertical Down (VD) position.

If the mark is on the right side of the bolt in the VD position, then you want a Right Handed lock. If the mark is on the Left side (again, while placed in the VD position) you need a Left Handed Pulsetronic Electronic combination lock. This is how you determine the hand of the lock to order, no matter how it is installed in the safe door. This, at least is how I do it.

There are two Phillips screws on the back cover of the lock. These are for attaching a relocking device cover that apparently you have to manufacturer yourself. As far as I can see they do not match up with any currently manufactured plates or cover attachments. There is also a red diode light that flashes whenever a sound is made or the keypad controller knocks on the safe door.

In a separate bag with the lock is a serial number tag and a reset code tag that can be saved or peeled and attached to the back of the lock. The peelable tag is shown in *photograph 6*.

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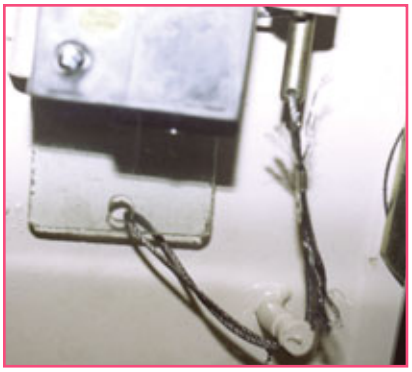
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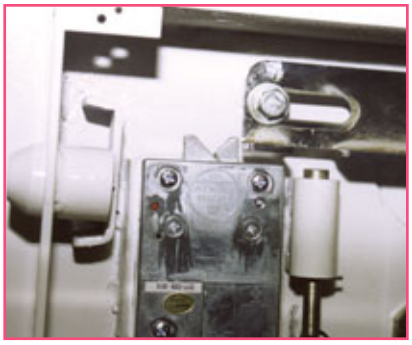
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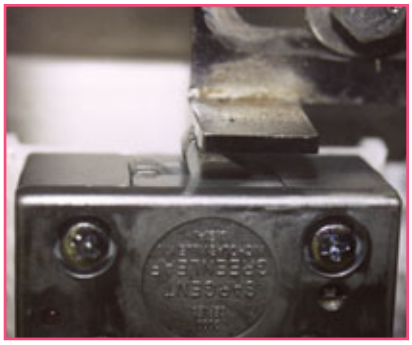
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7. Glass plate must be installed with longer screws on this particular safe.



8. Left Handed lock correctly installed. There must be space between the end of the bolt bar and the lock bolt.



9. Bolt bar causes primary bolt to withdraw secondary bolt when combination has been entered and the bar moved.

Before installing this lock to the safe door, it is imperative to install the batteries in the safe lock itself. The batteries included are 3-volt lithium type batteries. There is an outline of the correct polarity indicating how to install the batteries etched on the back of the safe lock. There is one small Philips screw to remove the battery cover. When the batteries are installed, this cover must be locked down with a tab, held shut, and then screwed tight. This is hard enough to do in your hands, but when the lock is in the safe, it is rather challenging.

The keypad lights up and numbers or stars are shown when doing the combination. This unit makes knocks or Pulses when the combination is activated. One thing of concern is you cannot change the keypad controller batteries. When the screen shows a low battery warning on the keypad, you must purchase a new keypad. The batteries in the keypad are not user serviceable. You must call your nearest S&G dealer for a replacement keypad. I found that rather odd.

In *photograph 7*, I have replaced the glass plate relocker. I had to use slightly longer screws to hold it in place. In fact, they were 1-1/2" instead of the supplied 1-1/4" quarter 20 machine screws. I did not unpin the relock plate during this test and I am glad I didn't.

In *photograph 8*, you see the left-handed S&G Pulsetronic lock installed Vertical Up. This is in the locked position. Putting pressure on the handle puts pressure on the first of the two-part bolt. For the lock to work correctly, there must be no bolt end pressure on the bolt. It electronically squeaks at you if there is pressure.



10. Finished installation: Note the cover over the spindle hole with the S&G Decal.

Now comes the programming part of the lock. First you must go through a couple of exercises to have the keypad and the lock determine sound sensitivity and they you must link the lock and keypad. Pressing certain numbers in sequence (according to the instruction manual) and having the lock respond does this. This must be done with the door open several times before trying it with the door closed.

Once everything is done correctly, the lock clicks indicating activation and the handle can be turned as shown in *photograph 9*. One half of the bolt folds, which causes the second half of the bolt to be pulled inside the lock. When it works, it is a smooth operation. After a few seconds the lock again makes a sound which lets you know that when you turn the handle back, the door will be locked automatically.

The finished installation is shown in *photograph 10*. The keypad controller is magnetically stuck to the door and the spindle hole cover and S&G decal are in place.

There are many unique circumstances where the consumer will appreciate this lock. With the one controller many different safes, boxes, and money chests can be separately controlled. All the person had to do is to enter the correct digits into the keypad while standing up, then place the keypad against the safe in the proper area and press enter. The lock will knock, and with a turn of the opening handle, the safe will open.

Another interesting feature is the possibility of having dual custody to open any safe. The controller could be locked up in a cabinet. One person could have the cabinet keys while the other person would have the combinations. Before the combination person could do their thing, the controller would have to be in their hands. When the safe was opened, the controller could be locked up and thus dual custody would be maintained. The safes will lock each time the handle is turned, so security is maintained.

Before installing or operating any new lock or safe mechanism, I always read all the operating instructions and all the installation instructions thoroughly. I make notes in the columns and look at the pictures carefully. I pay close attention to the troubleshooting tips and tricks. I take note of battery installation and proper procedures. I am kind of a nerd at doing this. I want it right the first time. However, it did not work that way with this lock.

The directions state to try the unit on the safe three times with the door open, three times with the door closed, and then three times with the door locked. After trying this several times, all I got was a low battery signal and the safe would not lock. I removed the lock again, checked and changed the batteries (3-volt Lithium, about $9.00 each), reinstalled, reset the sensitivity, relinked the unit, and tried the lock. It worked the 6 trial times, and when I locked the safe, everything stopped.

I tried the safe controller in the air and on another safe too. Nothing helped. I left for the day, reread all the instructions, and had an idea about tricking the lock.

The next day I returned and tried the keypad again. The safe lock did not work. I tried setting the sensitivity and linking. Nothing worked. I then tried my brainstorm. Using the directions, I made the controller think that I was enrolling another Pulsetronic lock in the system that can control up to nine different locks.

I choose the second position for the 'new' lock, set the sensitivity, relinked the lock and controller, and it opened on the first try. I immediately threw the bolts when the door was open to keep it locked open. TNL

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Beginner's Corner

In the Toolbox, Part 4
Key Blanks



By Ken Holmlund

Nothing is more basic to a locksmith business than key blanks. They may be the largest single investment you will make, and although they are not technically tools, they are as vital as any tool you will buy.

Key blanks come in many forms and opinions on them are just like noses, everyone has one. I will discuss original, high security, transponder, look-alike, branded, neuter bow, flat steel, corrugated steel, safe deposit, skeleton, bit and barrel and tubular blanks, along with the various materials that are used in their manufacture.

OEM Key Blanks

Let's begin with original blanks. *(See photograph 1.)* As the name implies, they are marked with the original manufactures name, logo or blank number of the brand of lock it fits. That does not mean that it is manufactured by that lock maker; just that it is manufactured for that original equipment manufacturer (OEM).



1. Original key blanks.

Some original manufacturer blanks would include Schlage, Sargent, Weiser, Falcon, Kwikset, Corbin Russwin, GM, etc. These blanks are produced to the original specifications of the lock manufacturer and you will usually encounter very few problems with them as far as their quality and the exactness of the fit in the lock. Many are made from nickel silver alloy and are quite hard. This adds to the life of the key, but it also adds considerably to the cost. You will find some customers that insist on original keys, and you will need to satisfy them, however, the vast majority of customers will be satisfied with a look alike blank.

Some manufacturers key blanks are available only in the original form, and you do not have the option of aftermarket alternatives. In this example I would suggest that you buy such blanks conservatively until you know how well they sell. Primarily due to the increased expense of OEM key blanks. You can always get more, but it hurts to get stuck with expensive original equipment key blanks that you can't sell.

High-Security Key Blanks

High security blanks, such as ASSA, Abloy, Mul-T-Lock, and Medeco for example, are a specialized form of original blanks in that most will have to be purchased from the manufacturer. *(See photograph 2.)* This is primarily due to the manufacturers controlled circulation of such key blanks. Many of which you will need to be a registered dealer of that brand of lock to be able to purchase the blanks. Additionally, many will require specialized equipment to originate or duplicate. Don't buy what you will not be able to cut. Before committing to be a dealer for any one brand, check the market in your area. Someone else may already have the brand you are looking to purchase and some brands are limited in the distribution of dealerships.

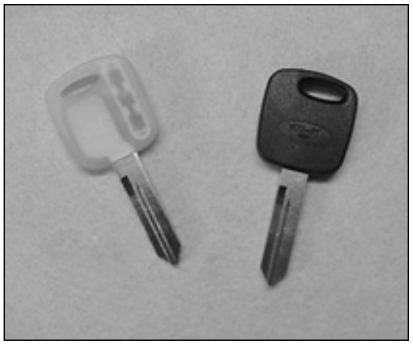


2. High Security key blanks.

Automotive Key Blanks

One of the largest investments you will need to make in key blanks will be for automotive, especially when you get into the high-security keys like transponder blanks.

Transponder key blanks are a big investment for any shop that does automotive work, and the selection will only get bigger as more car companies switch to transponders and change the types they are currently using. *(See photograph 3.)* A word of caution



3. Transponder key blanks.

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here, many cars are intended to be done by the dealership and you will need very expensive, very specialized equipment to handle the cutting and implementing of keys for them. If you are going to be a full line locksmith shop and will include automotive work in your daily jobs, you will need to have transponder blanks and the equipment to use them. Consider the cost and return on investment before purchasing this line of key blanks. Again, do your research on your market. If you live in a metropolitan area, all brands will come into play, but if you live in a rural area like eastern Montana, GM, Ford and Chrysler blanks may be all you will need. I will be covering the tools needed to do transponder work in later articles.

Look-alike Key Blanks

Look-alike blanks are some of my favorite styles because they seem to be made to the exact standards of the originals, but they are quite a bit less expensive. *(See photograph 4.)* Many are



4. Look Alike key blanks.

available in the same materials as the original and last just as long in the field. Look-alikes are not available in all keyways, but the most common ones you will need are available.

Aftermarket Brand Key Blanks

What I call branded blanks are blanks with the after market manufacturers name, and usually their numbers, on them. *(See photograph 5.)* They include brands like ILCO, JET, CURTISS, COLE, etc. Many larger chain stores and do-it yourself type operations will

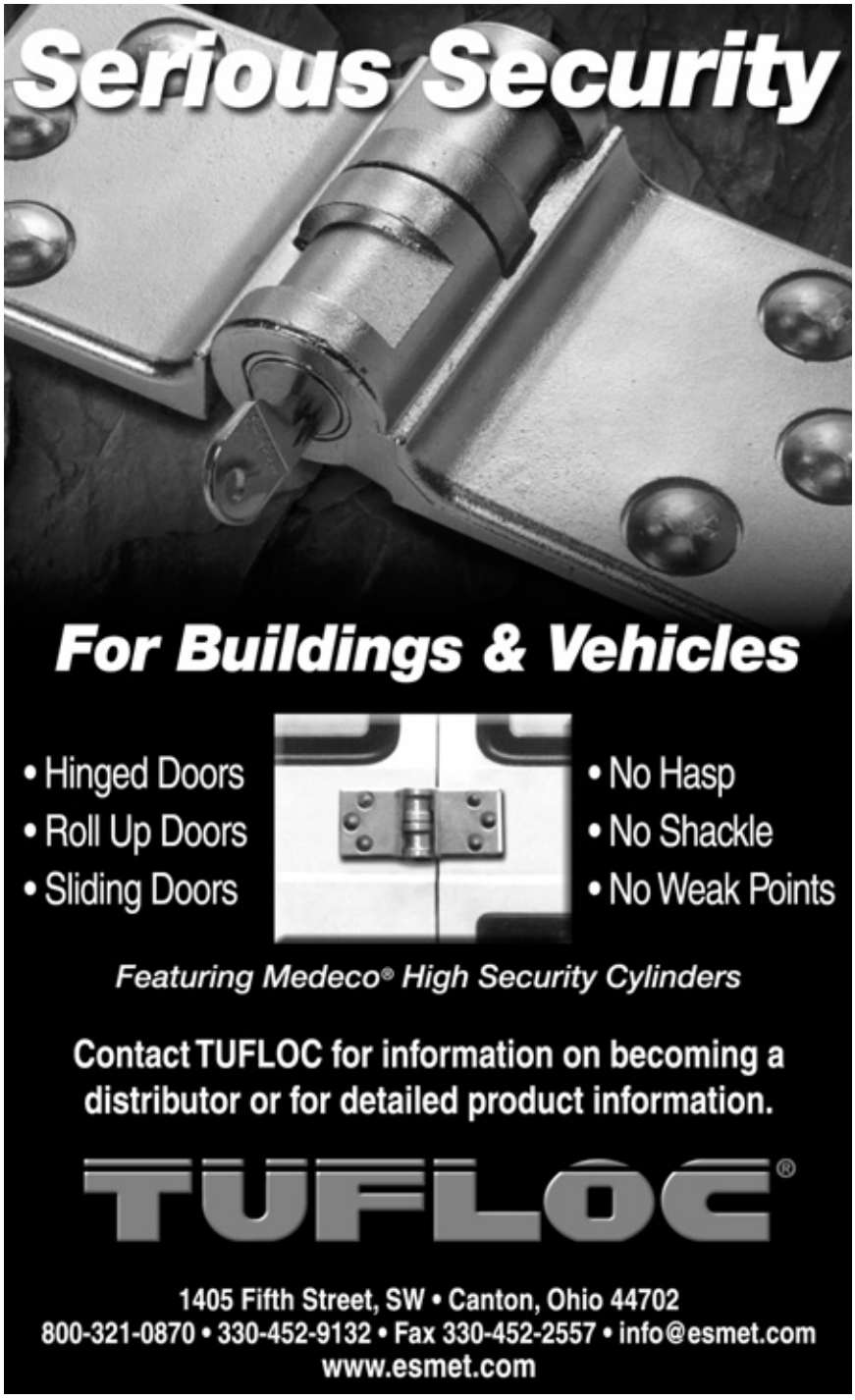


5. Branded key blanks.

have their own brand name. These are often a brass blank or a brass blank with a thin nickel coating. These are the easiest keys to duplicate because they have the numbers of the blank on them and the head shape usually matches the original manufacturers blanks. That makes it easier for anyone to copy them, even if they cannot read the keyway. A large portion of your blanks will be of this variety.

Neuter Bow Key Blanks

Neuter bow key blanks are available in a limited number of keyways, although the availability is



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6. Neuter Bow key blanks.

improving. *(See photograph 6.)* KUSTOM KEY has long been known for neuter bow blanks. They are called neuter bow blanks because they do not have the key blank numbers on them and the head shape is the same for all keyways. This really throws the inexperienced key cutter for a loop. The size of the head is larger than most blanks and makes for a good area to put a name and number if you have the need. I like the Do Not Duplicate incised blanks because it saves me time and the customers seem to like them. Kustom Key has a large selection of neuter bow blanks and their quality is quite good. They will send you a brochure detailing the blanks they have available if you request it.

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Designer Key Blanks

A new offering of key blanks are now available in what I call the designer series. They are key blanks with prints such as the American flag, flowers, 60's themes, etc. on them. *(See photograph 7.)* They have become very popular and are a good



7. Designer series key blanks.

impulse item. They are much more expensive than standard key blanks, but customers like them because they can personalize their keys or use them for identification purposes. These are available from such companies as Kaba Ilco, Jet, Klassy Keys, and Lockmasters.

Flat Steel Key Blanks

I will include flat steel, corrugated steel and safe deposit box blanks in the same category. *(See photograph 8.)* They are all made from steel or an alloy of steel and will require special equipment



8. Flat Steel, Corrugated and Safe Deposit key blanks.

to copy them. I have found it to be an advantage to have one machine set up just to cut the steel keys, including several Master padlock keys. The assortment of styles, lengths and thickness of steel keys is large and takes up several pages of the last key blank catalog I received. I keep a good assortment of these blanks, but do not see the need to try to keep them all in stock as they are available from my supplier in a couple of days. The largest demand for them is from the banks in my area that use me to cut their safe deposit keys, so I order them by the box. The other numbers I only get in tens, as I need them.

Bit & Barrel Blanks

The next type I will discuss here is the skeleton or bit and barrel key blanks. *(See photograph 9.)* These have been around since the dawn of locks and are still used in some



9. Skeleton or Bit key blanks.

instances. You will get some call for them if you live in an area that is older. A few numbers would be all that you would need to cover the most common styles. I suggest you check with some of your family and see if they have a few cut skeleton keys lying around so you can have a ring to use for trying out. It works well for me as I can usually find a key that will work the lock and then I can just copy the key onto the appropriate blank. They are not an exact lock and the key does not have to be as accurate as a pin tumbler would require. Use of a hand file will be a part of cutting these keys.

Tubular Key Blanks

You will be called upon to cut round keys before very long in this business as well. *(See photograph 10.)* These keys are called tubular because the body of the key is in

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10. Tubular key blanks.

the form of a tube. Special equipment is required to cut these keys and by far, the most common tubular key in my area is the standard 137. Plan on buying the specialty equipment needed to do tubular lock service and key duplication or origination if you want to be a full line locksmith.

Of course, there are other types of key blanks needed for specialty locks, like showcase locks and the like, but they are so minor in demand that you may want to only order these as needed.

The best information I can give here is to do the research before you invest. That does seem to be a theme for all my suggestions, but I believe the person that takes the time to do it will be better off in the long run. Don't over buy blanks just because they are on sale. If you take an accurate inventory of your blanks, I am willing to bet you would be amazed at the amount of investment you have accumulated over a short period of time. Inventory control is essential to making money cutting keys because the money you get for doing it is not equal to the money you would make doing other aspects of the profession. Check your local hardware stores for their prices as well. You do not have to meet their prices, but you should not be below them on price either. The idea is to make some money here.

Over time your key blank inventory will get quite large. Then the problem of storage and display accessibility needs to be addressed. However in the beginning, stock moderate amounts of the primary key blanks needed. Most key blank manufacturers will be glad to tell you which are the best sellers for each category (residential, automotive, tubular, etc.) and that would be a good place to start.

For more information on key blanks contact:

Kaba Ilco Corp.
2941 Indiana Ave., Winston Salem, NC 27105; Phone: 800-849-8324 or 336-725-1331; Fax: 336-725-3269; E-Mail: info@kws.kaba.com; Web: www.kaba-ilco.com

Jet Hardware Mfg. Corp.
800 Hinsdale St., Brooklyn, NY 11207; Phone: 718-257-9600; Fax: 718-257-0973; E-Mail: keys@jetkeys.com; Web: www.jetkeys.com

Kustom Key Inc.
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Klassy Keys
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Lockmasters Inc.
5085 Danville Rd., Nicolasville, KY 40356; Phone: 800-654-0637 or 859-885-6041; Fax : 859-885-7093; E-Mail: diannealarie@lockmasters.com; Web: www.lockmasters.com TNL

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The Lighter Side

Considering the Cost



by Sara Probasco

A highly successful rancher in the area who lives in a large ranch-style house at the edge of the hill country, about twenty miles north of us, came into our store one morning. Over the past three or four years, Marc Brumley had come to us for all his lock and key needs—no small amount of business. He has a need for vast numbers of keyed-alike padlocks on his ranch gates, not to mention securing his rambling home and ranch buildings. This particular day, he had a fairly simple request.

"How much would it cost me for you to put a couple of deadbolts on my house?" he asked.

"That depends on how soon you need it done and what kind of mood I'm in, at the time," Don replied with a wry little smile.

"Well, how about right now? How much?"

"Which house are you talking about?"

"Oh, that little shack I live in, up on the ranch," Marc said, indulging in the typical friendly banter he and Don had enjoyed through the years.

"Well, let me see." Don began figuring the price. "There's the mileage, and trip charge, and installation. You say you need two deadbolts installed?"

"Better make it three, now that I think of it," Marc said.

"Will we be replacing existing locks, or drilling holes for new ones?"

"You'll have to start from scratch."

Don figured a bit more, then showed Marc the figures, pointing to the bottom line.

"There's your price for us coming up there and doing the work. You'll have to decide which locks you want and add that cost, plus the sales tax."

"Good grief, man! At those prices you should throw in the locks for free. What's all this trip charge, mileage, and labor stuff? All I want is a couple of locks put in my doors. I didn't know you were trying to finance a vacation off of me." The twinkle in his eyes told Don he was just "ribbing" him a bit.

"Just so you'll understand how business works for those of us who have to work for a living, the trip charge covers my time from when I leave the shop until I get back, plus wear-and-tear on my service van from the store to the city limits and part of the cost of outfitting the van with all that equipment. The mileage charge covers the same thing from the city limits to the job site. The labor charge pays for my time installing the locks, once I get there."

"You don't miss a trick, do you?"

"I can't afford to, if I want to stay in business. You may notice, I didn't charge you anything for the aggravation of dealing with you. Consider yourself lucky. So, do you want me to do the work?"

"I suppose. How much are the deadbolts gonna cost me?"

"Depends on which ones you choose." Don spun a large revolving display stand to illustrate the scope of his choices.

"Show me something good and cheap," Marc said.

"Can't have it both ways. Of course, if you want to install them yourself…"

"I could do that, couldn't I? That'd save me all those other charges. I used to be pretty good with a saw and screwdriver. How hard can it be to cut a couple of little holes and insert the locks?"

"Actually, there's not all that much to it, if you have a hole saw the right size and pay attention to what you're doing," Don said. "I'll be glad to show you how it's done."

"By George, I'll do it, just to prove I can. Let me have three of these, keyed alike," Marc said, pointing to his choice on the display.

"I can pin these to match your entry locks and save you having to carry an extra key, if you like," Don offered.

"How much will that cost me?" Marc asked.

"Today, it's free with the purchase of the deadbolts. Tomorrow, I may change my mind," Don quipped.

"Do it." Marc tossed his house key on the counter.

The next time Don saw Marc was a couple of weeks later, when he came into our store to have a couple of keys duplicated. Don took his keys and started cutting the new ones.

"By the way," Don asked above the whine of the key machine, "Did you get those deadbolts installed without any problem?" When Marc didn't reply, Don glanced up at him. Marc was standing at the counter with his hands jammed into his pockets, looking at Don. His mouth twisted slightly.

"What's the matter," Don asked. "Did you have some problems with it?"

"You just don't know when to leave things alone, do you? You'll be happy to know, it would have been a whole lot cheaper on me if I'd had you come out and do it, in the first place."

"Oh, yeah? How come?"

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"I burned up one of my doors, if you must know. Had to get a volunteer fireman involved, to keep the whole house from going up."

"What in the world…?"

"The first door I tackled was the hand-carved, solid oak front door that my wife spent three years finding. I started trying to cut a hole in it with my hole saw, just like you showed me, but I wasn't doing any good. All I was getting was charred wood and a lot of smoke. I stopped to check the saw teeth, and they seemed sharp enough, so I tried again. I was determined to do the job without having to call you for help. The next thing I knew, the door really started smoking and smelled like it was about to catch fire. Lucky for me, ol' Randy Mathews had stopped by that morning to show me the antique fire truck he's been restoring. When he saw what was happening, he grabbed the fire hose off the truck and soaked the door to cool it down."

"What caused all the smoke?"

"You're going to make me tell the whole story, aren't you—my stupidity and all," Marc said, shuffling his feet nervously. "If you must know, I wasn't aware that I had my electric drill set on reverse, so I was burning a circular groove into my door with the back side of the hole-saw teeth, instead of sawing a hole in the wood."

Suppressing a smile, Don decided it would be best if he didn't comment.

"I had no idea my wife could get that upset, until she saw what we'd done to her beautiful door. Now, every time she sees it, she blows her stack all over again—I mean, several times a day. If we can ever find a replacement she's happy with, I'll be giving you a call to install all the hardware." His shoulders slumped a bit. "Do you have any idea how much this little project is going to cost me?"

"More than just the money, my friend," Don said, shaking his head sympathetically as he tried not to smile. TNL

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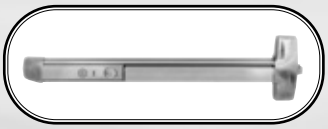
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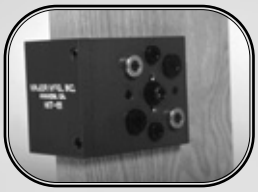
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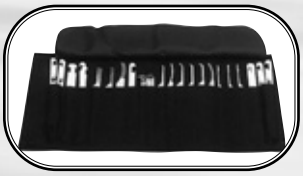
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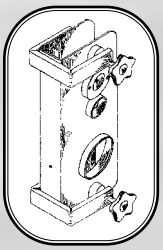
17th Prize

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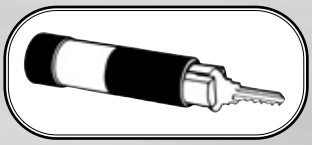


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Tips Start on Next Page

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JET KEY BLANKS WINNER:
Shimming The Follower

When rekeying certain key-in-knob sets, I sometimes run into cylinder plugs that are not squared off at the end. Sometimes the end is oval shaped (as with the Schlage "F:" series) and sometimes it is sloped like with Titan and many Kwiksets.

I've found it can be a nuisance trying to use a standard follower to push the plug out of the cylinder, as it often jams into the driver (top) pins, stopping the follower in its tracks.

To avoid this, after I've rotated the plug with the key, and before I insert my follower, I insert a shim between the plug and the cylinder and then place my follower against the rear of the plug, but under the shim.

When I push on the follower, the follower slides easily under the shim, the drivers stay in place and I accomplish that rekey much quicker. When I have the plug out of the cylinder, I simply leave the follower in place and remove the shim.

Mike Moriarty
Florida



WEDGECO KEY EXTRATOR WINNER:
Vibrating a Mercedes Ignition

I've found a new use for an old tool. Recently I was asked to open a trunk on a Buick Regal at a local church. Using my trusty R&D GM pick set has me in the trunk in short order.

After opening the trunk for the customer, the minister and I were talking when he told me about a problem he was having with his Mercedes. Sometimes the key would turn the ignition and sometimes it wouldn't. Yet, it worked the doors consistently with no problem.

I told him that his problem was far from unique because the four-track key was made of steel and the ignition wafers were made of brass. Since the ignition usually had more use than the doors, the ignition was worn and the key would not work as it should.

When I told him I could correct the problem, he told me that the Mercedes garage wanted to much to fix the car that he had been forced to let the car sit in the church parking lot until he had the money to repair it.

The first thing I did was decode his existing key, cut him a new one and found out that it didn't work! Next, figuring that the wafers were worn, I cut each cut slightly higher and tried that key. It didn't work either. I was ready to get the tools out to cut the face off the ignition to access the roll pin the hold the ignition in place, when I literally got a pain in the rear—I was sitting on my R&D pick which I had stuffed in my back pocket.

That gave me an idea.

I reinserted the key in the ignition, place the R&D vibrating pick tool against the ignition and turned it on. As the pick was vibrating, I put gentle turning pressure on the key and the ignition turned. I was able to remove the lock in the normal manner and replace it with a new one.

Since then, I have tried the same trick on other Mercedes ignitions, as well as door locks; it has worked every time.

Steven McCrider
South Carolina

A Few Words From Jake...



by Jake Jakubuwski

There comes a time in everyone's life when they realize they are, at least on one occasion, fallible. That is, no matter how hard they try, they will make a mistake. As much as I hate to admit it—I recently made a mistake!

Back in February, we printed a tip on a Volvo Glove Box tip and I inadvertently ascribed the authorship of that tip to Larry Bors of Oklahoma City. Wrong!

The tip was actually submitted by Ryan Hernandez of California.

Fortunately, we got the prizes and such straightened out, but the fact remains that I left Mr. Hernandez's name out of the magazine. For that I'm really sorry. Especially, since I know how hard some you folks work to get a tip submitted and to see your name in print.

Here we are in the merry, merry month of May, already, and we're heading into summer, with the various meetings taking place around the country, like ALOA, in July.

And then, on August 9th, LOCKFEST is going to be held by the Locksmith Association of San Antonio. LOCKFEST will be held in Fredericksburg, Texas and I will be holding a 6-hour Tips, Tricks and Stuff class there. I will have DETEX there with exit control hardware, a presentation of steering wheel locks (like the Club) and how to defeat them, and a couple other surprises. I will also be handing out my famous grab bags and beaucoup door prizes from various manufacturers and supporters of my seminars.

For more information on LOCKFEST, call Steve Morse, the LASA president at: 512-353-8615. Come on down for a lot of fun, information, prizes and education. My seminar is free to all who want to attend, whether you're an association member or not.

I look forward to seeing you there.

Here's a quick tip for you:

I had to rekey an off-brand rim cylinder recently. None of my followers would fit the cylinder, so I slipped a shim between the cylinder and the plug (see Mike Moriarty's tip below) and used a *Sharpie* marking pen for a follower! The barrel end of the marker slid into the cylinder with no problem until it filled the opening for the plug. The shim held the top pins in place.

Unlike, Mike, I left the shim in place. When I finished rekeying the plug, I simply inserted the plug, pushed against the end of the pen and when I had the plug seated removed the shim and put the tailpiece and retaining clip and reassembled the lock.

See y'all next month!



STRATTEC WINNER:
Vats Ignition Wiring Trick

Typically when replacing a VATS ignition; the procedure is to tear down the column and remove the old ignition and wiring. Then it becomes necessary to fish the new VATS wire, which is attached to the new ignition thought the column, and reconnect it. With this method the ignition can be replaced much faster without replacing the wiring, without damage, and without splicing the wires in any way.

Once the column is torn down and the ignition has been removed, but still is attached to the VATS wires, gently pry the ears off of the ignition and then carefully pry and slide the metal ring down and over the VATS wires.

There is a clear plastic cover over the VATS contact points. Simply pry this cover off, if it hasn't already popped off when the ears were removed. Now simply dislodge the contacts from their seats and repeat the procedure on the new VATS ignition and reinstall the existing wiring on the new ignition. Carefully replace the clear plastic cover and pop the ears back on, slide the metal ring into place and reinstall the ignition and reassemble the column as usual.

This may seem complicated, but it is a very simple task that once mastered will allow you to replace a VATS ignition in minutes. This is a real time saver. Also, there is less risk in damaging the wires by using this method than by trying to fish the wires through a tight column already crowded with other wiring. This method this will also leave you with a healthy supply of leftover VATS wires, which may be used for other repairs if, and when, needed.

Recently, I had a customer with a VATS Camaro whose key just stopped working. What actually happened was that the key turned the ignition just fine, but the car would start only occasionally. Diagnostics indicated that the wiring between the under dash connector and the ignition had become an open circuit, and would intermittently make contact with metal because of a partially severed wire.

The ignition was still operable and only the wiring needed to be replaced. I was able to tear down the column, replace the wiring with wiring I had salvaged by using the above tip, and reconnect it to his existing ignition. This solved the problem and the customer was pleased that he didn't have to pay for an expensive ignition in addition to all the labor.

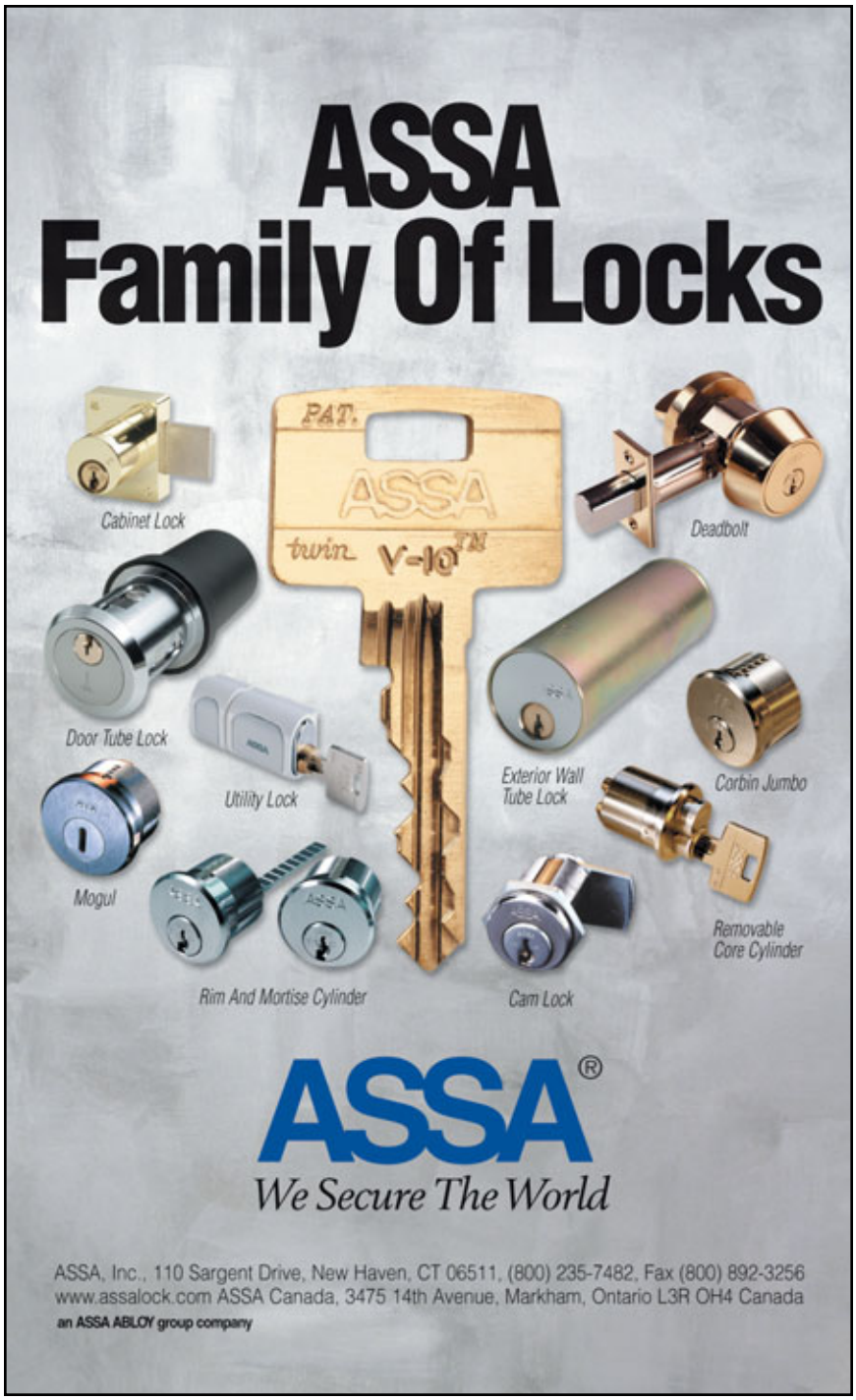
For those who wish to try this method, I suggest practicing with and old VATS ignition. I have not tried this method with the ten cut VATS, only on the six cut, but I do believe it is workable for the ten cut VATS as well as a six cut.

Mike McGowen
Florida

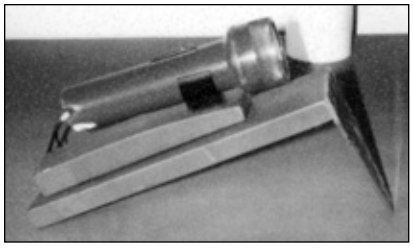


HPC WINNER:
Flashlight Holding Jig

During those times that I need a third hand to hold a flashlight while opening cars at night, I have developed a flashlight holder, which attaches to the outside window on the opposite door from which I am working. The light shines through the vehicle and can be aimed on the inside of the door that I am working on. That is, I can aim the light on the door lock button while watching for movement, or I can aim the light on



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Photograph 1.

the manual/power door lock switch while using an inside access tool.

The materials needed to construct this jig can be found around the house. A couple of blocks of wood, a thin piece of plastic, screws, and a bracket (a broom holder type works well) to hold the flashlight is all that's required.

Photograph 1, shows a side view of the jig and *photograph 2,* shows the jig placed in a car door.

One block of wood should measure 10" long and 3" wide and be 5/8" thick. The second block of wood should measure 7" long, 2" wide and 1" thick. Making a slight taper on this second block of wood will help in directing the light down towards the lock buttons. By the way, these measurements are not critical.



Photograph 2.

Mount the smaller block of wood on top of the larger with a screw, which should fit loosely. This will allow the top block of wood to swivel slightly to aid in aiming the light. Be sure to countersink all screw heads. Attach a small bracket to the top of the smaller block to hold the flashlight.

Next, cut and attach a V shaped piece of thin plastic on one end of the larger block as shown in the illustration. It is this plastic that is used to slide down between the window and the outside of the door and supports the flashlight holder.

Of course, the flashlight is clipped into the bracket and can be aimed or swiveled as desired.

Robert K. Booska
Vermont



SARGENT AND GREENLEAF WINNER:
Opening A Burglarized NKL

This procedure sure saved my bacon when I was called upon to open a mutilated NKL safe with Sherlock controls. The handle had been destroyed, the door was sprung and sledged, all the digital components trashed and the wiring pulled out!

Fighting the hardplate to reach the solenoid pin through a ruined, handleless door, didn't seem like a plan. Besides the store manager wanted in the safe A.S.A.P.

Continued on page 98



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A1 INTERCHANGEABLE CORE SOLUTIONS



DECODING BLOCK
A fool proof solution for determining Control Key Codes for I/Core systems. Drive the pin stack into the Decoding Block where a pin tray keeps them separated & in order. **#TB1**





MULTI-USE CAPPING BLOCK
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Caps are formed from a brass strip as you seat them into the core.



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A1's I/Core Service Tools as a complete set saves you money.

Complete Service Kit for I/Core
Includes Decoding Block, Multi-Use Capping Block and Dumping Block at substantial savings. **#ICKT**



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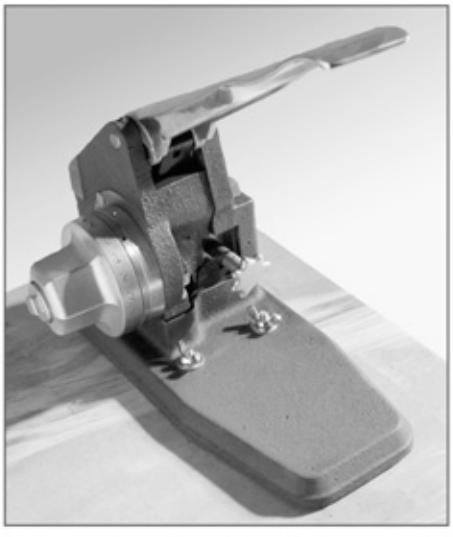
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Continued from page 96

Fortunately, there was a similar NKL located not too far from where I was working and I took the dimensions that you see in *illustration A,* which got me in the ruined NKL in under a half an hour!

Note: *These drill points are for the 20" x 20" x 32" safe only.*

First, I made a mark 2-5/16" in from the left edge of the door, near the top of the door. Then I made an identical mark near the bottom of the door. Using a straightedge, I joined the two marks. This established the centerline on which the rivets that hold the bolt work and cam together are located.

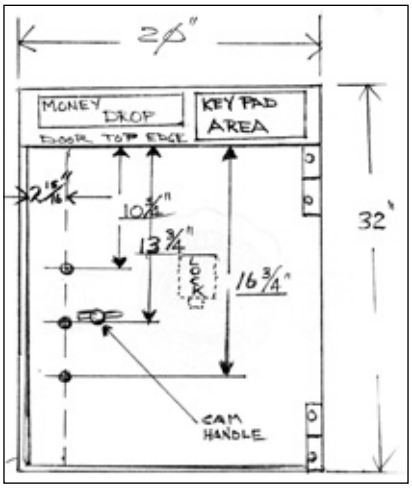


Illustration A.

Next, as can be seen in the illustration, measuring down from the top of the door I marked an intersecting point on my vertical line at 10-3/4", 13-3/4" and 16-3/4". These three intersecting lines are directly over the rivets that I needed to drill.

I used a 1/4" drill bit to cut a pilot hole through the mild steel of the door and then used a 3/8" drill to enlarge the holes and drill the heads off of the rivets. The rivets can be through drilled or punched to separate the cam from the boltwork.

If you are working on a decent door, these rivets can be replaced with common fasteners if you were interested in salvaging the door.

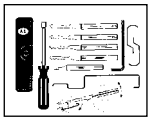
Once the cam is separated from the boltwork, I probed the bolts to the right (about 5/8") until I was able to pull the door open.

I think that if I were working on one of these units where the boltwork would not probe far enough to the right to clear the edge of the door and allow it to open, I would loosen (not detach) the door hinges which would allow more play in the door.

With the bolts pulled as far to the right as I could pull them, I opened the door and accessed the contents of the safe.

Now this might seem like butchery, and would be on a salvageable door, but since this door had been beaten, banged and bent, this proved to be a fast, effective and workable method of opening this unit.

Fritz Ackerman
Ohio



A-1 SECURITY PRODUCTS WINNER:
Von Duprin M99

For those that are not familiar with the workings of a Von Duprin M99 panic device, the tailpiece of the cylinder fits into a cam, which raises and lowers a toothed steel plate (the arrangement resembles a rack and pinion) which locks or unlocks the outside trim. By preventing the thumb latch from being depressed the latch cannot be retracted.

As these devices age, the soft metal of the cam wears out and



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allows the teeth on the stamped plate to slip past the worn teeth on the cam.

The first time I ran across this problem, I found out that the cam the cylinder tailpiece fits into is not available as a separate part. So, I started robbing them out of old units in my shop and changing them out. It's not the easiest job but it is do-able.

During a repair on a double door, I realized that the devices are not handed and simply switched the panic devices on the doors. I then had a brand new cam under the cylinder and the worn cam on the inactive door. It doesn't matter if the cam on the inactive door is worn since there is no key access to that door.

I shudder to think how many of these I have repaired before realizing that help was just a few inches away!

I'm not advocating running a business by never selling any new hardware. But, I'm also employed at a school district and enjoy telling my supervisor that I've saved the district five hundred dollars before my morning break.

Elgie Lejeune
California



ILCO KEYBLANKS WINNER:
Vats Key Marking

I have found a way to mark the GM VATS keys I have. I used to put key tags on them and write the value number on the key tag. Well, over time the tags get worn, the ink fades or the tags fall off. Then I thought about stamping the value on the bow of the key! You don't need to hit it hard because it is a rubber head, just a little tap will do.

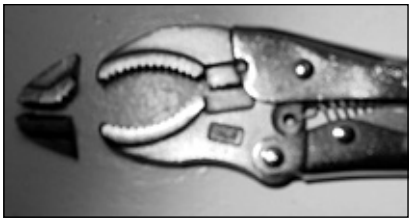
Now all I have to do is look at the bow to see which value I have. Stamping them also keeps them from getting mixed up.

Mr. Lock
Texas



KEEDEX WINNER:
Impressioning Tip

I had an idea for fabricating an impressioning tool from new Vise-Grips model 6LC. These alligator tip Vise Grips work with any size key, from a large bow double-sided Chrysler to a small bow Y11.



Photograph 3.

Since the tool grabs the edges of the key, rather than the flat of the bow, there is no slipping with the up and down rocking motion used when impressioning. I cut approximately 1/2" to 5/8" *(see photograph 3)* off the tips and then ground the top and the tips of the jaws down. *(See photograph 4)*.



Photograph 4.

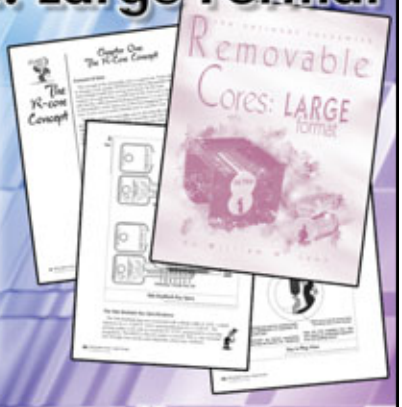
These modified Vise-Grips have made a welcome and useful addition to my toolbox. I'm sure this idea will work as well for others.

Mehdi Zahedi
Ohio

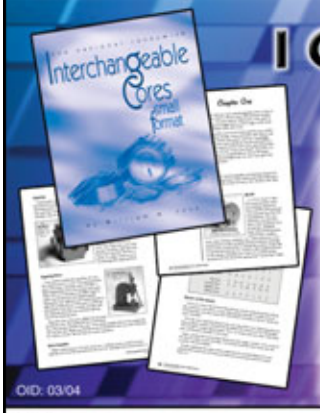
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by William M. Lynk

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TECH TRAIN TRAINING VIDEO WINNER:
I Can See Clearly Now

I'm new at servicing cars and vans and it didn't take me too long to realize that I was taking way to long to get some vehicles open. Particularly those with heavy tint on the windows that hindered my view of the interior of the vehicle.

The problem was exaggerated at night when I tried to hold a flashlight in my mouth or asked the customer to help and then tried to get them to point the light where it would do me the most good. It was frustrating.

I finally came up with a way to stand beside the car, get an excellent view of the interior (day or night) and speed up the opening at the same time.

Illustration B, shows a device that I came up with to aid me in getting cars open much faster, as I could see the lock buttons or slides move when I had my opening tools in their proper position.

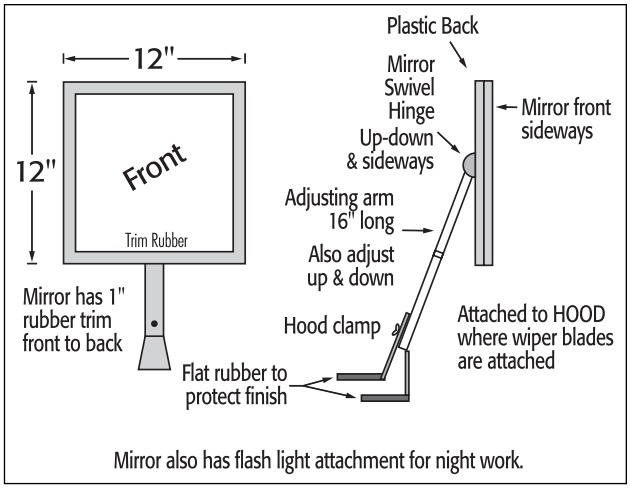


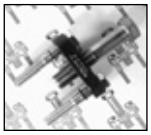
Illustration B.

I found a 12" x 12" mirror and mounted it on an adjustable swivel arm. The arm adjusts side-to-side, as well as up and down. I can attach the mirror's arm to either the windshield wiper arm or to the lip of the hood. It takes only a moment to place the mirror and a second to adjust it to give me the view I want of the interior of the vehicle.

For nighttime use, I have another swivel mounted to the mirror that holds a flashlight. I can adjust the flashlight and mirror so that it directs the beam of the flashlight to the area of the interior where I need to see what's going on.

It took me about a week to find all the materials I need to assemble this device. But the effort was well worth the results.

Marty Coleman
Colorado



SIEVEKING PRODUCTS GM E-Z WHEEL PULLER WINNER:
GM Sidebar Tip

A customer brought me two door locks without keys or wafers in the locks. I combinated the cylinders and code-cut the keys. The keys would work one lock and would not work the other.

I checked the calibration of my code machine and cut a third key. That key would work one lock, but not the other.

I disassembled the lock that the keys would not operate and inserted

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the key in the plug. I noticed that the sidebar would not withdraw into the plug far enough to allow the plug to turn in the housing.

I used a piece of very fine sandpaper and with the key in the plug, lightly sanded the sidebar even with the outside of the plug. When I inserted the plug in the housing, the plug turned freely.

With the plug out of the housing, I removed the key and saw that the sidebar would protrude far enough to lock the plug securely in place.

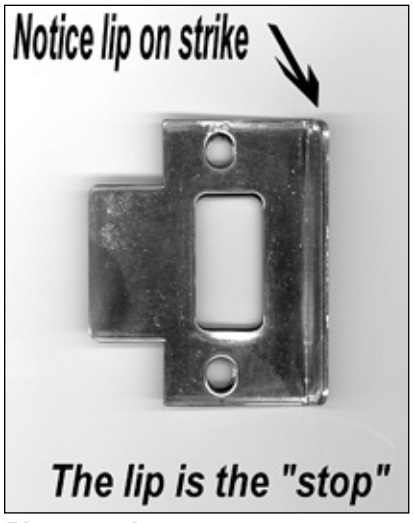
Willie C. Dawson
Georgia

Major MANUFACTURING, INC.

MAJOR MANUFACTURING PRODUCTS WINNER:

Protected Back Strike Tip

Both Sargent (Part #804) and Yale (Part #431) make a Protected Back Strike. These strikes provide extra security against forcing the latch bolt out of the strike. *(See photograph 5.)* They also serve as a stop on double doors that are not rabbeted. They come in a 1-3/8", and a 1-3/4" configuration for the two most popular door thicknesses.



Photograph 5.

I have found a unique use for these strikes that has helped me immensely when it comes to installing deadbolts on doors such as Stanley's residential doors that have the crush (foam or rubber) weather-stripping.

Usually when I install a deadbolt on these types of doors, no matter how carefully I align my deadbolt strike hole and plate, the door will shut, depress the foam or rubber weather stripping and the door will slam lock. That is, the anti-shim device on the latch will snap into the strike hole because of the give in the weather stripping.

Whenever I encounter one of these doors now, I install a Protected Back Strike. Aligning the strike (usually, just using the existing strike holes) with the deadbolt strike location and the lip on the strike prevents the door from closing too far and slam-locking.

Not only do the Protected Back Strikes prevent alignment problems; they also make a nice add-on sale.

Daniel McGlynn, CML
New Jersey



LAGARD WINNER:

Trapped Taurus Key Removal

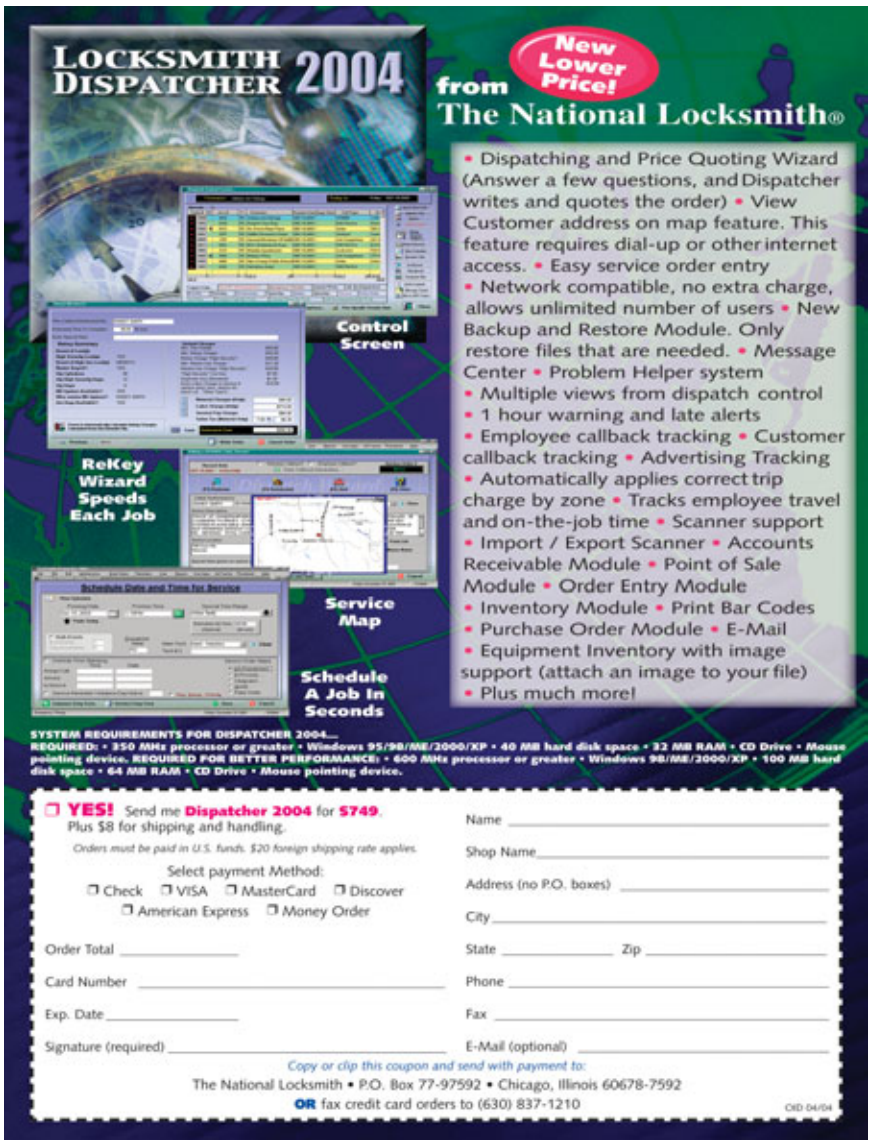
I was working on a 1997 Taurus (with the Ford 8-cut) and found much to my dismay, that my eyes were not as good for impressioning as they once were.

I decided to pull the door lock and cut the key by reading the wafers. I was using my HPC Punch machine, and after cutting a 5 cut in the second position, I tried the key in the lock, only to find that it was trapped and I couldn't remove it! No matter how I wiggled and jiggled the key, it simply would not come out of the plug.

I surmised that the 5-cut had a hook on it, and that is what was holding the key so firmly in the lock. I was almost ready to give up and resort to more serious and time-consuming removal methods when I had an idea.

I realized that the H75 blank allowed me enough room to insert the release tool from my Determinator kit, down along the key and release the trapped wafer! It worked like a charm and the key came right out.

Larry Kanzer
TNL *Pennsylvania*



Road Rally

A showcase of locksmith service vehicles.

If you think your vehicle has what it takes to be featured here, send photographs and descriptions to:
The National Locksmith, Road Rally, 1533 Burgundy Parkway, Streamwood, Illinois 60107-1861.



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Owner: Grant P. Mitchell, Gouverneur, NY

Model: 1994 Chevrolet K1500 Ext. Cab Pickup 4x4

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BUSINESS BRIEFS

Kaba Mas

Kaba Mas, formerly Mas-Hamilton Group, known for marketing innovation, is launching the **Kaba Mas Dealer Network** an incentive program for dealers who buy Kaba Mas products. The Dealer Network is the second phase of the company's surprising new distribution plan.

The first step was to create a network of wholesalers. The Kaba Mas Wholesale Network is made up of companies with a similar market philosophy to Kaba Mas along with the necessary resources to support that philosophy.

Kaba Mas has spent the last year selecting, training and certifying their Wholesale Network members. Now the company is ready for phase two of their distribution plan the Kaba Mas Dealer Network.

The Kaba Mas Dealer Network is a first for the industry a simple, fun way to thank loyal Kaba Mas dealers. Through the Dealer Network, Kaba Mas products will be shipped with Kaba Koupon stickers. Dealers simply collect the Koupons, amassing points toward an entire catalog of products. Choose your product, collect enough Koupons, then redeem your points. That's it! Joining the Kaba Mas Dealer Network and tracking your points is easy: There are several ways to join: Sign up online at www.kabamasdealers.com Sign up at a Wholesale Network location or trade show.

For more information on Kaba Mas visit www.kaba-mas.com.

New Medeco Account Executive and Sales and Marketing Director

Karen Metzger has joined Medeco Security Locks of Canada, in Waterloo, Ontario, and will serve as the Senior Account Executive for the Central Ontario territory. Metzger comes to Medeco



from Best Access Systems, where she spent 13 years working with end users.

Noel Flynn joined Medeco High Security Locks in November as Director, Sales and Marketing. Flynn came to Medeco from Kaba Ilco



(formerly Unican) of Winston Salem, NC where he was Vice President, Sales and Marketing since 1998.

Markar F.A.C.T.S. to Go.

Markar takes its Factory Authorized Certification Training School on the road to several locations across the country. The school focuses on methods of solving problems on high traffic doors, doors with automatic operators and security doors with access controls. The benefits of using adjustable hinge and door products as well as the advantages of integrated door systems are on the class agenda.

The goal is to provide information to aid in trouble-shooting installations in commercial, industrial, and educational facilities. The agenda topics will be presented by personnel from Markar Architectural Products, Inc. and the Adams Rite Manufacturing Co.

More details and school locations are listed on www.markar.com. On-line registration is available. Phone: 800-866-1688; Fax: (716) 685-3919.

D&D Moves Fischer

Pat Fischer has joined Dugmore & Duncan in the Midwest Region. Fischer entered the hardware industry several years ago as a driver and worked his way through shipping and receiving. Armed with the hands-on knowledge that he acquired, he entered the sales arena, both inside and outside. Pat joined Dugmore & Duncan's outside sales team in the fall of 2002.

Pat can be contacted at: (888) 658-3846 ex.1167.

New DORMA Lock Line

DORMA Architectural Hardware's new line of mortise, cylindrical, tubular and deadbolt locks offers architects, specifiers, locksmiths and door hardware professionals a comprehensive selection of Grade 1 and Grade 2 locks that meet the functional and aesthetic requirements of commercial and institutional doors.

DORMA Architectural Hardware can now offer a high quality door hardware package to meet the control and security needs of virtually any commercial or institutional door. Together with other DORMA Group North America Divisions, including DORMA Automatics, DORMA Glas, Crane Revolving Door and Modernfold, DORMA offers the industry's most complete line of commercial hardware for pedestrian openings.

DORMA's Grade 1 mortise and cylindrical locks are available in a variety of functions as well as electrified fail-safe and fail-secure models. The Grade 2 heavy-duty cylindrical and Grade 2 tubular locks are available in the most popular industry standard functions. Models throughout the line have UL approvals and meet or exceed ANSI standards.

In addition, DORMA offers a complete selection of cylinders and keying options, including master keying, construction master keying and patented key control.

IR Security & Safety Wins Architecture Awards

Several brands of IR Security & Safety architectural hardware were winners in December's Architectural Magazine's first annual Architects Choice for Excellence Awards (ACE). The "ACE Awards" recognize manufacturers who have provided the best products and service to architects and their projects.

IR brands were selected as industry leaders for their commitment to product excellence in the areas of durability, value, service and quality. Other criteria used to select the winners included innovation, customer collaboration and top-notch performance. Reader ballots appeared in Architectural Magazine in April, May and June and included questions such as "Which manufacturer can always be trusted to make it happen in the field?"

IR's Schlage, Von Duprin and LCN brands received three of the five ACE Awards in the Hardware Category. In addition, IR received three of the five in the Security Access and Surveillance Category with its Schlage, Von Duprin and IR Security & Safety brands.

For a list of all the ACE award winners, representing the best in the business visit www.architecturemag.com. TNL

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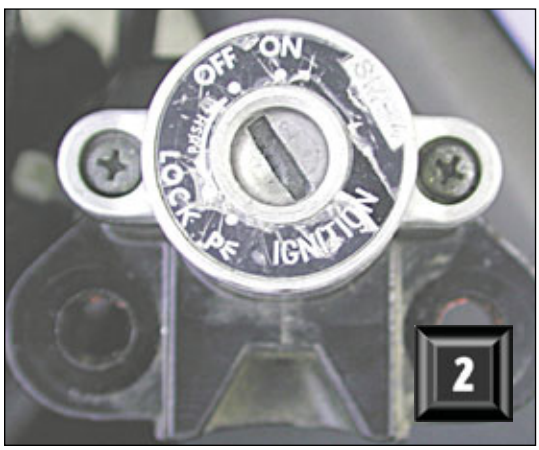


by John Blankenship

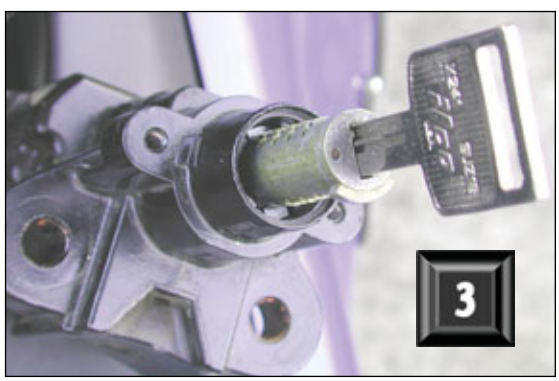


The SM-4 ignition/steering lock is used on late model Suzuki sport bikes such as GZ250, SV, Katana, Bandit, GSXR, TL1000 and V-Strom models. There are no codes on any of the locks so the best way to originate a key is to obtain the cuts for spaces 3-7 from the gas cap by reading or disassembly. You can then use key code software or progress spaces 1-2 in the ignition lock to obtain a working key. Two methods of disassembly are presented here. If you are not familiar with this process, the first method of removing the gas cap assembly from the gas tank would be best. After you become familiar with the process you can better use the second method of leaving the gas cap assembly on the gas tank.

The lock is shown in the OFF position, which means the ignition is off and the steering is unlocked. To lock the steering turn the handlebars to the right or left, insert the key, push the plug in, and turn it counter-clockwise to the LOCK position. Turning it farther counter-clockwise to the "P" position turns on the taillight so the bike can be seen when parked on the side of the road at night. The plug does not have to be pushed in to turn it from OFF to ON.



Removing the ignition lock from the motorcycle usually involves some motorcycle mechanic work to gain access to the two security bolts that secure the lock from underneath. Once you have the lock in your hand, you can remove the two Phillips screws and remove the facecap and faceplate/dust shutter unit.



The lock needs to be in the OFF position so that the lugs on the back of the plug will align with the grooves inside the housing. Then the plug can be pulled out the front with or without a key. There is a spring at the back of the plug that can be left in the housing as long as it is still centered and standing upright. If it is in the LOCK position, you will need to read, impression or pick it to the OFF position. It is a lot easier to read, impression or pick if the facecap and faceplate are removed. The plug contains eight wafer tumblers all on the same side of the keyway. The first seven tumblers are raised by the seven spaces that we cut on the key. The eighth tumbler is raised by the pre-cut tip on the X241 blank.

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— 2001 SUZUKI SV650S —



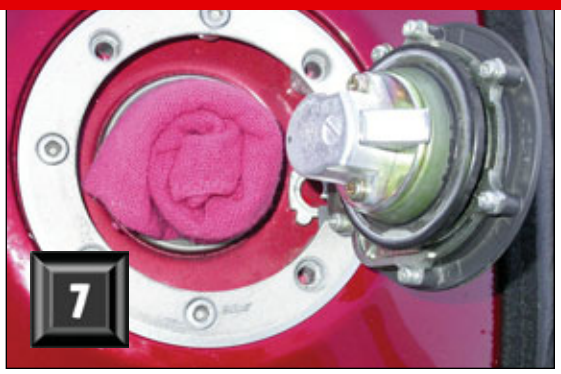
This 650cc V-twin lightweight sport bike has created a large following due to its good power and handling characteristics. There are no codes anywhere on the bike, but originating a key for it is not difficult.



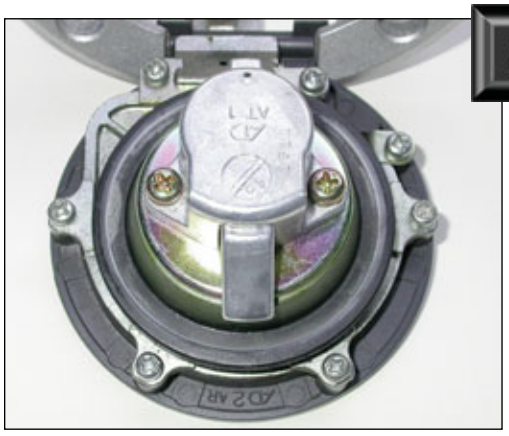
This view from the drivers seat shows the SM-4 ignition/steering lock just in front of the handlebars and the gas cap on top of the gas tank.



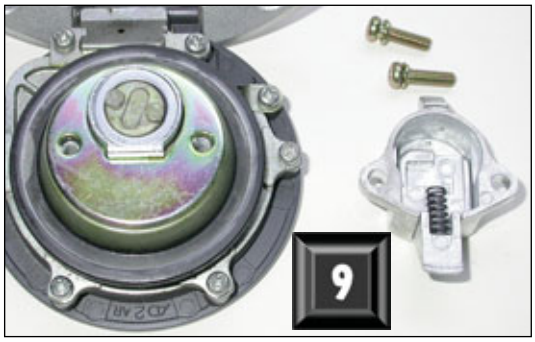
Pick the gas cap 90 degrees clockwise to open it. You are picking against spring pressure so have a small screwdriver ready to finish turning it. This lock picked easily with a rake and lubing can help if it is being stubborn.



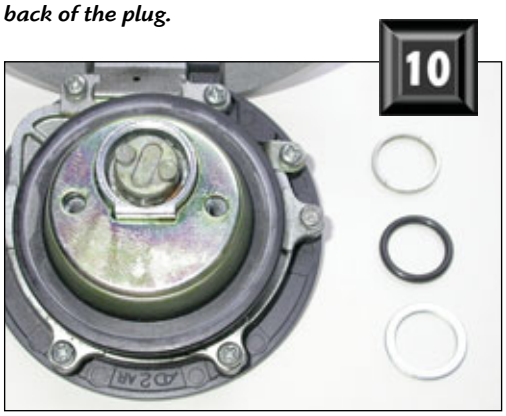
Stuff a rag into the filler neck to prevent the bolts or anything else from dropping into the tank. Four of the seven mounting-ring bolts have been removed using a 4mm hex key. The other three bolts do not have to be removed. The gas cap assembly can now be removed and taken to a workbench.



Remove the two Phillips screws and remove the locking bolt housing.

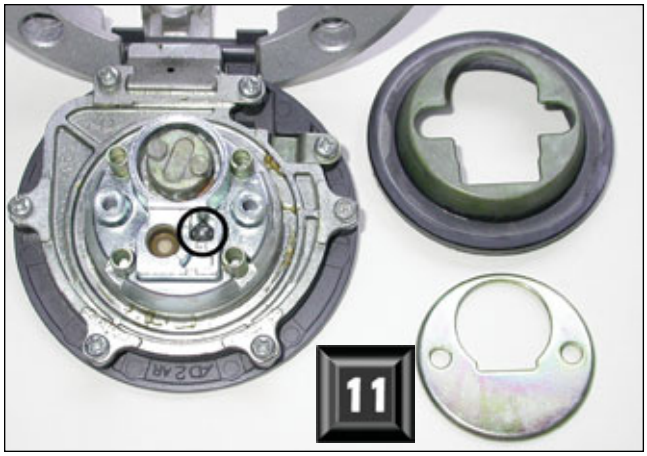


The locking bolt housing has been removed along with the locking bolt and spring. I use grease to hold the bolt and spring in when I turn the housing over to reinstall it. Now remove the washer from around the back of the plug.

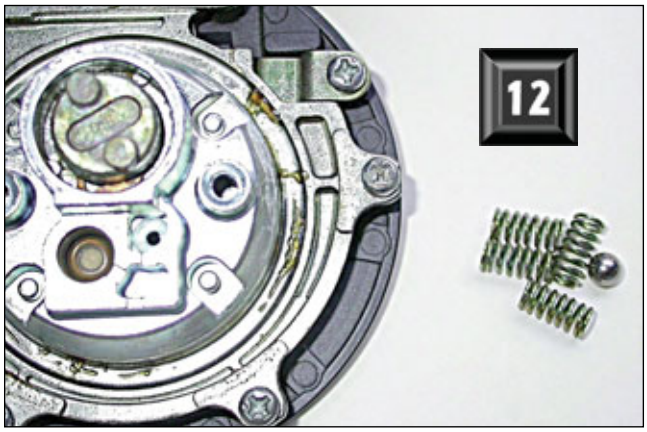


The washer has been removed and placed on the bottom. Then the O-ring was removed using a dental pick and placed in the center. The gas cap assembly was turned over to allow the bushing to fall out. Some grease was holding it in so a little tapping was needed to free it. You need to hold the round plate that surrounds the cylinder on or it will fall off and probably spill small parts. You can now depress the retainer and push the plug out the front while being careful not to allow any wafers to spring out.

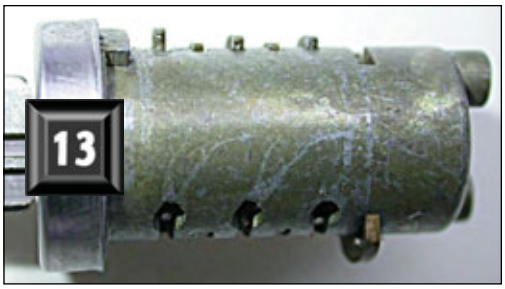
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The round plate and gasket plate have been removed to show the small parts that can fall out. There are four compression springs and a ball bearing that can easily be lost. The ball bearing is in a recessed area and is circled in the photograph.



The four springs and ball bearing have been removed. The retainer is visible on the bottom side of the plug.



The gas cap contains five wafer tumblers and the retaining wafer. An X241 blank inserted into the plug shows that the cuts for spaces 3-7 are 42323. A search using key code software revealed that there is only one code that uses these cuts in the last five spaces. The code is A6797 with cuts of 1342323. You can also progress the first two spaces in the ignition or seat lock. Notice that the key is tip stopped in this lock.



The original key is on the bottom. The code cut X241 on the top with cuts of 1342323 works all three locks on the bike.



The seat lock is located on the left side of the bike just below the drivers seat. Turning it clockwise releases the front of the passenger seat allowing it to be raised. It has wafer tumblers in spaces 1-5.

– 2002 SUZUKI GSXR600 –



The customer lost the keys to his new GSXR600 Telefonica sport bike. It has the same locks as a standard GSXR600.



This view from the drivers seat shows two of the three locks on this bike. The ignition/steering lock is near the top of the photograph and the gas cap lock is near the bottom.

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This bike uses an SM-4 ignition/steering lock but SM-4 is not stamped on the face. You can identify it because it looks exactly like an SM-4 otherwise.



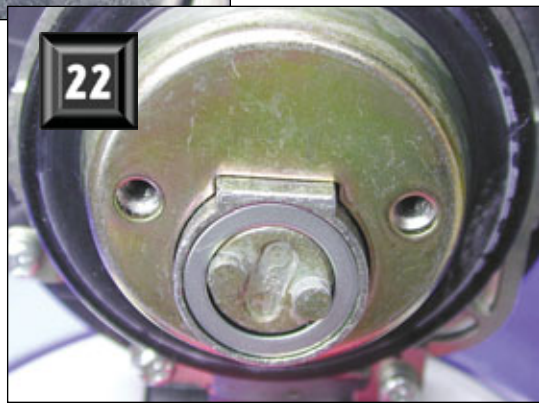
The gas cap is a good source to obtain the cuts for spaces 3-7. Pick the gas cap lock 90 degrees to open the gas cap. You are picking against spring pressure so have a small screwdriver ready to finish turning the plug. This lock picked easily with a rake and lubing can help if it is being stubborn.



Stuff a rag into the filler neck to prevent anything from dropping into the tank. Remove the two Phillips screws and remove the locking bolt housing from the bottom of the cap. Be careful because the bolt and spring can fall out. Also make sure the round plates under the locking bolt housing stay on. There are four small springs and a ball bearing under the gasket plate that you do not want to lose.



The lock bolt housing, bolt and spring are shown removed from the gas cap. I use some grease to hold the bolt and spring in position when I replace them onto the cap. A magnetic parts dish is a handy place to store the parts until you need them again.



The next step is to remove the washer from around the back of the plug and then remove the O-ring under it. I use a dental pick to remove them. Next, remove the bushing that is under the O-ring. The best way to remove the bushing is to tilt the gas cap forward on its hinge until it falls out. Be sure and hold the large round plates on when you do this or they can fall off and spill the small parts. Some grease was holding the bushing in so a little tapping was needed to help it fall out.



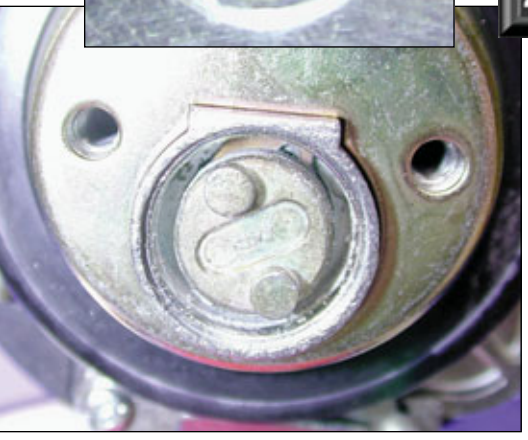
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The washer was removed and placed on top, the O-ring was removed and placed in the center, and then the bushing was removed and placed on the bottom.



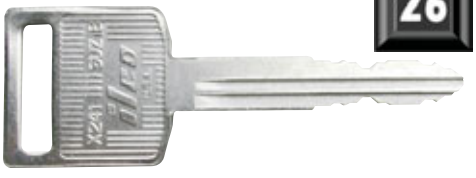
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The retainer is visible on the upper side of the plug. Depress it and push the plug out the front while making sure you do not spill any wafers. Be sure to hold the large round plates on while doing this.



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The gas cap plug contains five wafer tumblers and the retaining wafer. An X241 blank inserted into the plug shows that the cuts for spaces 3-7 are 42113. A search using code software revealed that there are only three codes that use these cuts in the last five spaces. The first try worked with cuts of 2242113, which is code A6632. You can also progression the first two spaces in the ignition or rear compartment lock; there are 16 possible combinations. The key is tip-stopped in this lock.



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A code cut X241 with cuts of 2242113 turned all of the locks smoothly.

The rear compartment lock is located on the left side below the seat. It needs to turn clockwise against spring pressure to release the latch. It will spring back to the locked position when released. It contains wafer tumblers in spaces 1-5.



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The rear compartment has been opened. The lock pulls a cable to release the latch so the front of the compartment cover can be raised for removal.

Note: *An X179 blank will work on the secondary locks, but the longer X241 is needed to fully enter the SM-4 ignition/steering lock.*

Codes: *A6001-A7000*
Blanks: *Ilco X241 (SUZ18), Curtis SU18, Silca SZ14RAP*
Spacing: *1=.157, 2=.256, 3=.354, 4=.453, 5=.551, 6=.650, 7=.748*
Depths: *1=.295, 2=.276, 3=.256, 4=.236*
Card Number: *CMC71*
DSD Number: *441*
ITL Number: *523*
Curtis: *MZ-3 cam & SU-2A carriage*

Tumbler Locations:	1	2	3	4	5	6	7
Ignition Lock:	X	X	X	X	X	X	X
Gas Cap Lock:			X	X	X	X	X
Seat/Rear Compartment Lock:	X	X	X	X	X		

Ignition Lock: *1-7*
Gas Cap Lock: *3-7*
Seat/Rear Compartment Lock: *1-5*

TNL

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WEB REVIEW

SecuraKey

http://www.securakey.com/



Secura Key has been in the business of manufacturing access control equipment for over 20 years. They offer a complete line of access control products ranging from single door, highly intelligent stand alone systems, to complete multi-door, online PC based systems. Reader technologies include slotless TOUCH CARD®, PROXIMITY, and other leading technologies.

The web site offers a good overview of products and software used in their systems. You can even download a variety of the software programs used in conjunction with the company's hardware. Also very convenient is the list of distributors which makes it easy to find a supplier near you.

Particularly valuable is the listing of Product Training dates and locations which are listed in the Events section. The company has many training opportunities available to help locksmiths move deeper into this profitable field.



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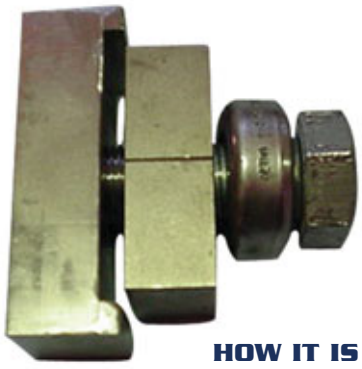
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Taking Industry Products for a...

TEST DRIVE

The Squeeze Play
by Sieveking Products Co.



IN SUMMARY:

DESCRIPTION: Hollow Steel Door Mortise Tool

PRICE: $140

COMMENTS: A well made tool that really does the job.

TEST DRIVE RESULTS: Easy to use and makes a factory perfect mortise. Made for years of use.

THE NEED:

How do you install a deadbolt in a steel door that has not been prepped for the bolt? This is a question that every locksmith will face many times in his or her career. Drive-in bolts are not the answer due to several faults, including the fact that the hole isn't always the correct size to hold the bolt solidly, or that the bolt will tend to move from side to side when pressure is applied to it. This can be a real problem, especially if the deadbolt is a double cylinder, which could cause the tailpieces to slip from the latch, causing a lockout.

THE ANSWER:

The *Squeeze Play,* by Sieveking Products Co. The Squeeze Play Hollow Door Mortiser is manufactured for just this very application. It creates a square mortise in the latch edge of steel doors that accepts a standard square faceplate latchbolt. It works for both 1" by 2-1/4" and 1-1/8" by 2-1/4" faceplates.

Manufactured from hardened chrome molly steel, the Squeeze Play also features a grade 5 bolt for squeezing the unit and a quality thrust bearing. The Squeeze Play will give you a near factory perfect mortise every time. No more attempts at driving the side of the door in far enough to make the bolt slip past the jamb, and it looks professionally done, unlike the punch and hammer trick far too many have used.

HOW IT IS USED:

To use the Squeeze Play, a couple of things are necessary. First, you will need to drill a 2-1/8" crossbore hole in the door. If you are installing a smaller deadbolt, like a Schlage, which uses a 1-1/2" crossbore for example, you will have to use the 2-1/8" adaptor ring included in the box to cover the hole.

Next, you will have to drill a 1" hole edge bore to accept the latchbolt. I suggest marking the jamb before using the Squeeze Play so you have a more accurate mark for the drilling of the 1" hole in the jamb.

With the hole drilled as described, mark the center of the hole on the edge of the door. This is to be sure the Squeeze Play is centered. Next, inset the larger part of the Squeeze Play into the 2-1/8" hole, making sure to keep a firm grip on it so as to not loose it in the door. The one I use has a hole for attaching a wire or other holding device and I suggest using it.

With the hole in the Squeeze Play centered over the hole in the side of the door, place the smaller part of the tool, with the bolt as well, over the hole and screw the two parts together. The smaller part of the Squeeze Play has markings on the side of the tool to enable you to line up the marks you made for the hole center with the center of the tool. Lightly tighten the tool and make sure the mortiser is centered.

If you have a socket set large enough to contain a 1-1/4" or 30mm socket, slip the socket over the bolt and tighten it hard until it will not turn any further. The mortise is now formed.

With the mortise done, mark the location for the screw holes with the included marker. This is done by placing the marker into the hole in the face of the smaller part of the Squeeze Play and hitting it with your hammer. Turn the bolt loose keeping the firm grip on the inner portion and remove the Squeeze Play from the door. Install the deadbolt and collect your money, confident that you have done a professional job and the customer will be very happy.

PRICE:

The tool is available from most locksmith wholesale supplier houses and sells for around $140.

CONCLUSION:

It is well worth the cost even if you only do a few installations in steel doors. Time is money and this tool will definitely save you time.

For more information contact:

Sieveking Products Co.
PO Box 4287
Rockford, IL 61110
Phone: 815-874-4030
Fax: 815-874-5713
E-mail: bob@sievekingprodco.com
Website: www.sievekingprodco.com TNL

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